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ABSTRACT

To assist in the evaluation of future employment and population growth for the State of Tennessee, this two-part report presents both State-wide and regional projections. The State-wide projections are divided into population, labor force, occupational, and industrial projections. In order to show the population and manpower situations which would develop in Tennessee if the 1950-60 trends were continued, these projections for 1970 and 1980 are extrapolations of the earlier trends. The second part of this report presents an analysis of the nine planning regions of Tennessee. Each region is analyzed according to the size and age-sex composition of its population and labor force. Each regional analysis considers the size and sectional distribution of total employment within the region. The final object of analysis by planning region is to show what changes occur in the sectional distribution of the employed and the age-sex distribution of the population of the region. The regional projections are also compared with the State projections in all areas. A related document is available as VT 011 977. (Author/BH)

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TENNESSEE

POPULATION, LABOR FORCE, AND EMPLOYMENT PROJECTIONS AND INTERPRETATIONS

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A Report Of

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OUTLINE OF THE TENNESSEE POPULATION AND ECONOMIC BASE STUDY

I. TENNESSEE AS AN ECONOMIC ENTITY
    A. ECONOMIC GEOGRAPHY
    B. ECONOMIC HISTORY
    C. THE INCIDENCE OF POVERTY

II. TENNESSEE AND NATIONAL ECONOMIC GROWTH

III. TENNESSEE POPULATION, LABOR FORCE AND EMPLOYMENT
    A. PROJECTION TECHNIQUES FOR MANPOWER PLANNING IN SMALL AREAS
    B. TENNESSEE POPULATION, LABOR FORCE, AND EMPLOYMENT PROJECTIONS AND INTERPRETATIONS ← This study

IV. TENNESSEE LARGE URBAN AREAS

V. TENNESSEE INDUSTRY

VI. TENNESSEE RESOURCES

VII. TENNESSEE SERVICES

VIII. ECONOMIC PROFILES OF TENNESSEE'S NINE PLANNING REGIONS*

IX. POLICY CONCLUSIONS: PROBLEMS AND OPPORTUNITIES

*Incorporated with Chapter III B.

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I. ANALYSIS OF STATEWIDE PROJECTIONS FOR TENNESSEE

This section of the Tennessee Economic Base Study analyzes the statewide manpower projections for the entire State of Tennessee.

These projections are divided into four parts: (1) the population projections, (2) the labor force projections, (3) the occupational projections, (4) the industrial projections. These projections are made for 1970 and 1980, and are extrapolations of 1950-1960 trends. They are designed to show the population and manpower situations that would develop in Tennessee if the 1950-1960 trends were continued.

The population of Tennessee is projected to increase from 3,567,089 in 1960 to 4,004,901 in 1970 and to 4,301,400 in 1980. The predicted growth rate for the 1960-1980 period is 20.6 percent, with a higher rate of increase forecast for the first half of this period. This signifies a slowing of outmigration in this decade, with some acceleration of outmigration during the next decade.

The labor force is projected to have an increasing share of females. Females represented 32.5 percent of the State's labor force in 1960, and they are projected to comprise 42.3 percent of the labor force in 1980. This increase is the result of higher labor force participation by females throughout the near future.

The occupational and industrial projections reflect a continuing shift of the labor force from lower-skilled, unremunerative employment to higher-skilled, higher-paid employment. The largest increases are projected for the clerical, professional and managerial occupations and for the service industries. Absolute declines are predicted for the relatively low-paid laborers occupation and for the agricultural, food stores and restaurant industries.

With these important facts about each of the four sets of State projections given, each set of projections will be considered in further detail.

The projected population given in Table 1 differs from those given in the regional projections and other parts of this study. The projected populations for Tennessee given in Table 1 are 4,004,209 for 1970 and 4,308,298 for 1980. The projections given elsewhere in the study are 4,004,901 in 1970 and 4,301,400 in 1980. The differences are insignificant.

The populations projected on the table are the direct results of the computer output. The projections given in other parts of the study are the results of direct addition of the age-sex totals for the counties and corrections of some mistakes made by the computer.

Population Projections

Total population projections for the State of Tennessee indicate that population will rise faster in the 1960-70 decade than it did in the 1950-60 decade. The rate of population increase will slow down during the 1970's.

The total population of Tennessee increased from 3,291,718 in 1950 to 3,567,089 in 1960, for a percentage increase of 8.4 percent compared to a national growth rate of 18.4 percent for the same decade. The total population of the State is projected to increase to 4,004,901 in 1970 and to 4,301,400 in 1980. The projected percentage increases are 11.2 percent for the 1960-1970 period and 7.4 percent for the 1970-1980 decade.

It should be borne in mind that since the projections are based on the assumption of continuation of the 1950-1960 trend, this would imply that nothing could be done to improve the population situation in the State. Trends since 1960, however, show considerable improvement throughout the State due largely to concerted effort by governmental agencies to foster industrialization, education, and economic development. Populations of many regions and of the entire State should be higher than forecast by these projections.

Females slightly outnumbered males in Tennessee's 1960 population and they are projected to continue to outnumber

TABLE 1

ACTUAL AND PROJECTED AGE-SEX DISTRIBUTION
OF THE TENNESSEE POPULATION, 1950-1980

Age	ALL MALES				ALL FEMALES			
Groups	1950	1960	1970	1980	1950	1960	1970	1980
0-4	192,762	199,395	221,588	238,702	187,040	194,279	215,552	232,820
5-9	164,130	190,389	210,329	225,533	158,899	185,162	204,132	219,701
10-14	145,675	182,102	195,207	210,766	140,928	176,693	190,330	205,860
15-19	134,059	150,395	184,647	192,244	136,350	146,562	181,329	189,678
20-24	127,151	109,861	156,628	157,812	138,194	119,174	171,539	170,938
25-29	128,987	103,807	132,571	159,657	137,948	114,758	136,899	166,557
30-34	116,263	109,505	96,423	139,565	123,524	120,807	108,599	155,383
35-39	116,141	114,140	94,482	118,931	121,766	124,887	106,506	125,401
40-44	104,262	106,289	102,265	88,556	108,619	114,264	114,079	100,406
45-49	88,182	103,377	103,866	84,368	92,776	109,194	114,492	95,751
50-54	76,498	92,355	95,812	90,523	79,515	97,683	103,953	101,340
55-59	64,941	77,850	92,248	90,709	65,855	84,614	100,195	103,026
60-64	52,008	61,324	74,764	74,503	54,361	69,362	86,428	89,830
65-69	46,407	53,543	64,737	73,105	50,727	61,603	79,847	90,912
70-74	31,671	39,580	47,296	55,102	33,899	47,335	61,285	72,349
75&over	33,970	46,778	63,967	73,848	38,210	60,022	92,214	114,422
Total	1,623,107	1,740,690	1,936,830	2,073,924	1,668,611	1,826,399	2,067,379	2,234,374
Median Age	26.9	26.8	25.0	25.4	27.6	29.0	27.6	27.9

FIGURE 1

TENNESSEE: 1960 AGE-SEX DISTRIBUTION OF TOTAL POPULATION

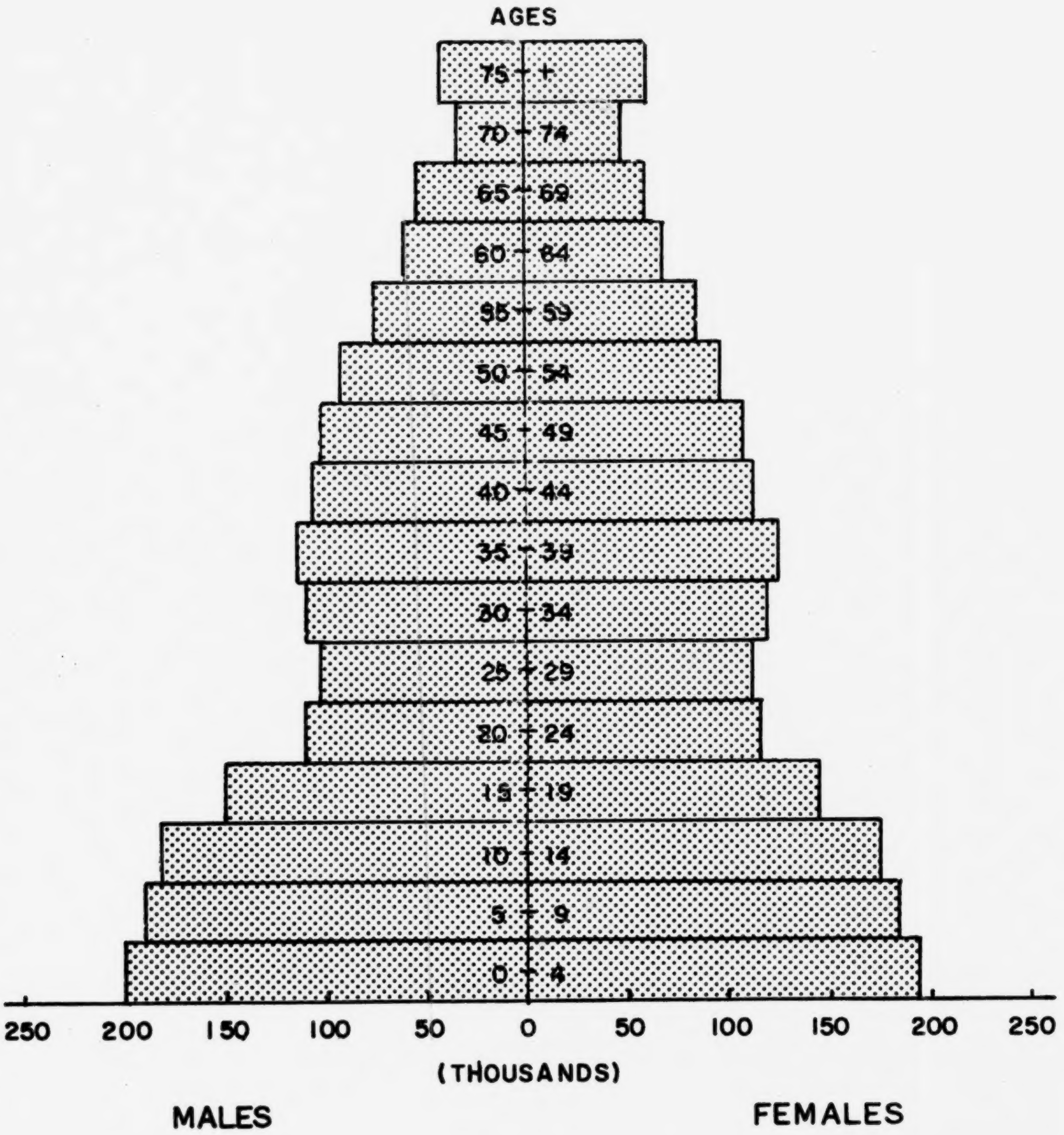
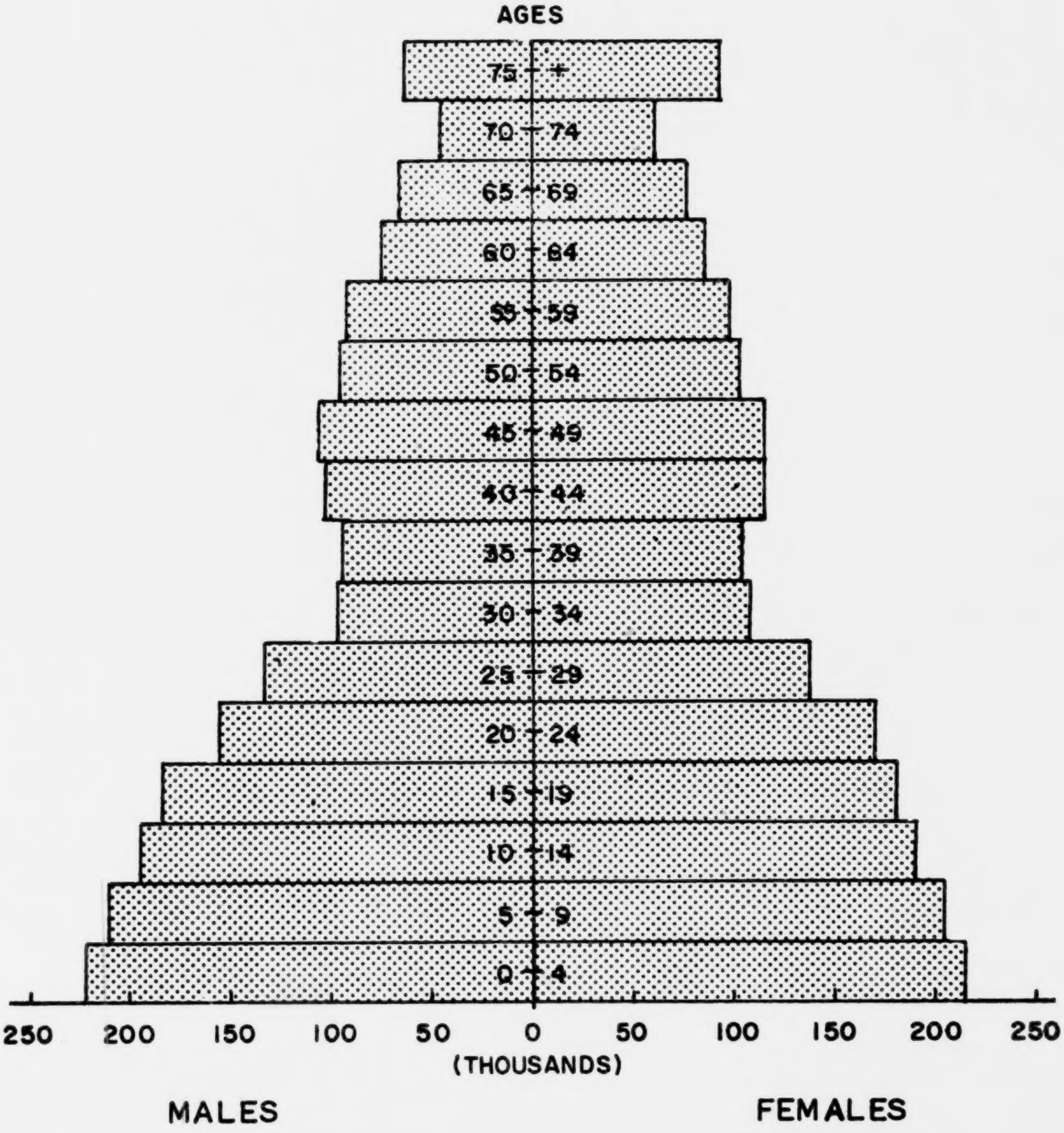


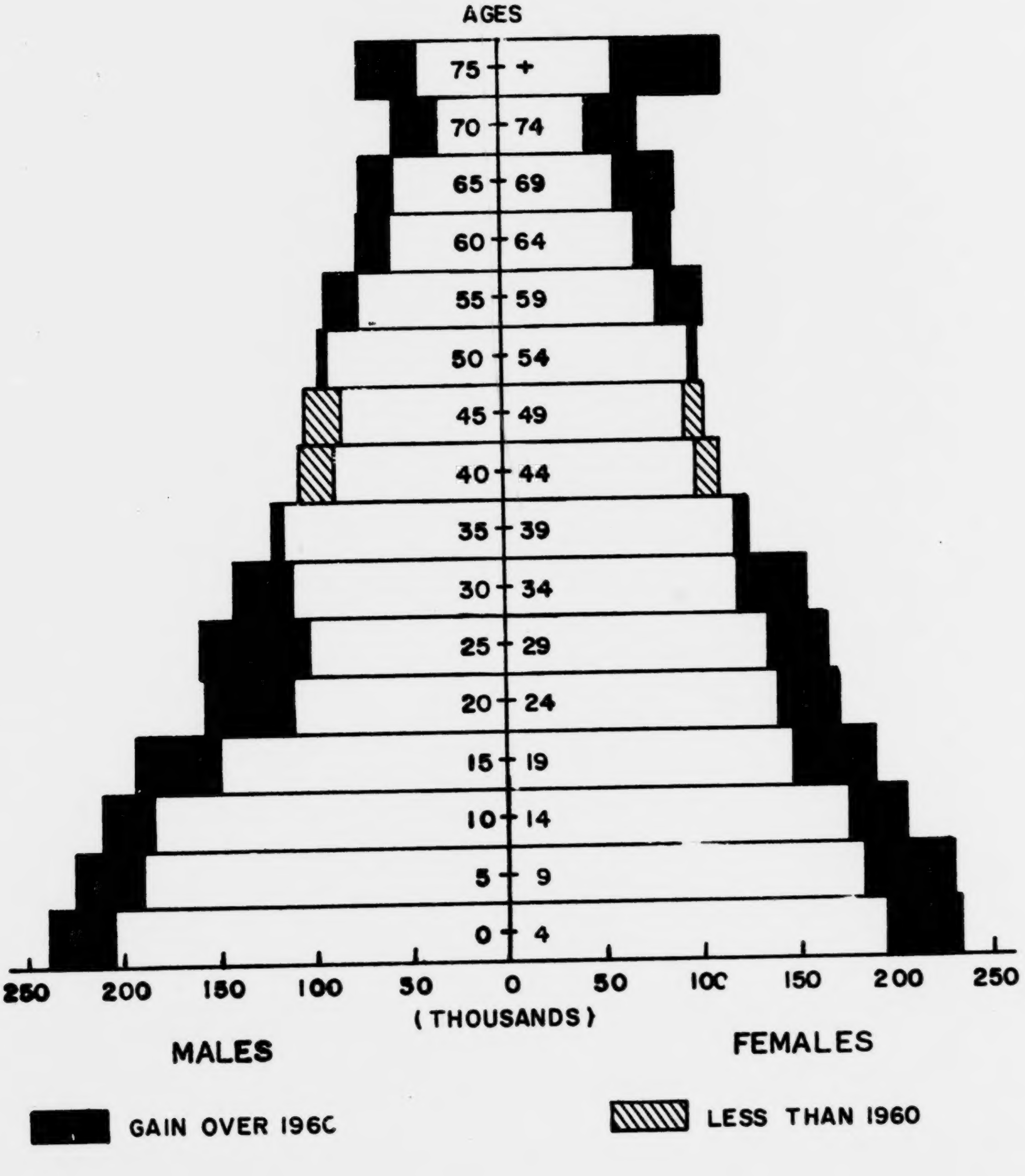
FIGURE 2

TENNESSEE: 1970 AGE-SEX DISTRIBUTION OF TOTAL POPULATION



FIRURE 3

TENNESSEE: 1980 AGE-SEX DISTRIBUTION OF TOTAL POPULATION



males in 1970 as well as in 1980 as illustrated in Table 1 and Figures 1, 2, and 3. This is a national demographic phenomenon. Males usually outnumber females in the younger age groups since more males are born than females. Beginning with the 20-24 year age group, females begin to outnumber males. The ratio of females to males grows larger with each older age group. This is due to the longer life expectancy of females.

The male population is forecast to become gradually younger as the large number of children born during the postwar period begin to raise families. This childbearing trend is predicted to continue at the birth rates of the 1950's through 1980. The female population is expected to become older due to their greater longevity. These trends are shown in Figure 3, which superimposes the 1980 population profile over that for 1960.

This figure shows the differences in the population between the two years. The greater number of births forecast for the 1970's causes an increase in the younger age groups. Greater longevity contributes to a larger number of elderly people in 1980. A smaller population 40-50 years old is projected for 1980, since these people were born during the Depression years, when birth rates were quite low.

TABLE 2

ACTUAL AND PROJECTED POPULATION IN SIGNIFICANT AGE GROUPS FOR TENNESSEE

	1960			1970			1980		
Group (Age)	Male	Female	Total	Male	Female	Total	Male	Female	Total
Pre-School (0-4).	199,395	194,379	393,774	221,588	215,552	437,140	238,702	232,820	471,522
Elementary School (5-14)	372,491	361,855	734,346	405,536	394,462	799,998	436,299	425,561	861,860
High School (15-17)	94,145	92,095	186,240	113,306	109,537	222,843	119,243	116,153	235,396
Post-High School (18-24)	166,111	173,641	339,752	227,969	243,331	471,300	230,813	244,463	475,276
Young Adult (18-34)	379,423	409,206	788,629	456,963	488,829	945,792	530,035	566,403	1,096,438
Mature Adult (35-64)	555,335	600,004	1,155,339	563,437	625,653	1,189,090	547,590	615,754	1,163,344
Retirement (65-+)	139,901	168,960	308,861	176,000	233,346	409,346	202,055	277,683	479,738

TABLE 3

ACTUAL AND PROJECTED POPULATION PERCENTAGES BY SIGNIFICANT AGE GROUPS FOR TENNESSEE 1960-1980

	1960			1970			1980		
Group (Age)	Male	Female	Total	Male	Female	Total	Male	Female	Total
Pre-School (0-4)	5.6	5.4	11.0	5.6	5.4	10.9	5.5	5.4	10.9
Elementary School (5-14)	10.4	10.1	20.6	10.1	9.9	20.0	10.1	9.9	20.0
High School (15-17)	2.6	2.6	5.2	2.8	2.7	5.7	2.8	2.7	5.5
Post-High School (18-24)	4.7	4.9	9.5	5.7	6.1	11.7	5.4	5.7	11.0
Young Adult (18-34)	10.6	11.5	22.1	11.4	12.2	23.6	12.3	13.1	25.4
Mature Adult (35-64)	15.6	16.8	32.3	14.1	15.6	29.7	12.7	14.3	27.0
Retirement (65-+)	3.9	4.7	8.7	4.4	5.8	10.2	4.7	6.4	11.1

NOTE: Percentages for age groups obtained by direct division of total for age into total population. For this reason, the percentages for age groups may not equal the sum of the percentages for age-sex groups.

TABLE 4

PROJECTED PERCENTAGE CHANGES IN SIGNIFICANT AGE GROUPS FOR TENNESSEE

	1960 - 1970			1970 - 1980			1960 - 1980		
Group (Age)	Male	Female	Total	Male	Female	Total	Male	Female	Total
Pre-School (0-4)	11.1	10.9	11.0	7.7	8.0	7.8	19.7	19.8	19.7
Elementary School (5-14)	8.9	9.0	8.9	7.6	7.9	7.7	17.2	17.6	17.3
High School (15-17)	20.4	18.9	19.7	5.2	6.0	5.6	26.7	26.1	26.4
Post-High School (18-24)	37.3	40.1	38.7	1.2	0.5	0.8	39.0	40.8	39.9
Young Adult (18-34)	20.4	19.5	19.2	16.0	15.9	15.9	39.6	38.4	39.0
Mature Adult (35-64)	1.5	4.3	2.9	-2.8	-1.6	-2.2	-1.4	2.6	0.7
Retirement (65-+)	25.8	38.1	32.5	14.8	19.0	17.2	44.4	64.3	55.3

The purpose of this section is to carry out the analysis of the projected age groups as given in Tables 2, 3, and 4. The population is divided into significant age groups for analytical purposes. The elementary school age group (5-14 years of age) increased by 20.5 percent during the 1950-60 period. The rate, however, will slow down considerably during the present decade, and will decline by the 1970-80 period. The main reason for the high rate of increase in 1950-60 of this age group was the post-war baby boom. This group is expected to have a more moderate growth rate from 1960 to 1980. The high school group (15-17 years) will grow by 19.7 percent during the 1960-1970 decade as it feels the full impact of the baby boom. During the 1970-80 decade, however, the rate of increase is projected to slow to 5.6 percent. This reflects the high rate of outmigration that is projected for this decade.

The question is, what are the implications of these projected phenomena? Demand for high school space, high school teachers, and school supplies will be substantial. Also, this implies larger expenditures for education by the public sector. These demands will become more reasonable, however, by the 1970-80 decade, as this group should grow more slowly.

The post-high school age group (18-24 years) is projected to increase by 38 percent from 1960-1970. This again reflects the impact of the baby boom in the post-war period. The implications of this substantial increase means, of course, increased pressure on college facilities in the State. The demand for recreational facilities and equipment as well as automobiles will also increase. This impact is now being felt in Tennessee. The growth rate of this group from 1970 to 1980 is forecast to be less than one percent, reflecting higher rates of outmigration.

If the 25-34 year age group is added to the post-high-school group, a larger group called "Young Adult" is created. This group is an active, transitional one. Its younger members begin career-building activity. Table 4 shows that the growth rate of this group declined for both sexes between 1950 and 1960. This is primarily due to outmigration during the decade.

This highly significant group has completed its preparation, yet has most of its career before it. It generates high demand for many products and services since it is the principal household-forming and career building group. This group spends more heavily on such items as major appliances, houses, automobiles, and pediatric needs than any other group with the possible exception of the mature adult group. Future forecasts about the economic base of the State should take into consideration all kinds of provisions for the development of this group because it will form the future business, professional and governmental leadership of Tennessee. This group is expected to increase by 19.2 percent from 1960 to 1970, and by 15.9 percent from 1970 to 1980.

The mature adult age group (35-64 years) is the prime age group. Its members have established themselves in their careers. This group actively contributes to the Tennessee economy. Incomes are higher in this group than in any other. Its members are making heavy expenditures for the rearing and the education of families. This group contributes much of the business, professional and governmental leadership of the State.

From 1950 to 1960 this age group increased by 12.7 percent. This increase was due primarily to the entry into this group of a fairly large cohort[1] born in the prosperous 1920's. The population growth in this group is projected to undergo a sharp decline during the 1960-1980 period. From 1960 to 1970 the growth rate is projected to be 2.9 percent and from 1970 to 1980 there is projected to be an actual decline of 2.3 percent.

The decline in the growth of this important age group is caused primarily by two reasons: (1) heavy outmigration of people from the State in younger age groups during previous periods, and (2) low birth rates in the 1930's, when the members of the group were born.

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[1] Cohort is defined as a group of people born during a certain period. For example, the cohort born during the 1936-1940 period were 20-24 years of age in 1960 and 10-14 years of age in 1950.

This means that if the 1950-60 trend is continued, Tennessee will face a serious shortage of population in the most productive age group. For this trend to be reversed, programs designed to create more and better employment opportunities should be developed.

The retirement age group (65 years of age and over) is predicted to be the fastest growing group in the State, with a projected growth rate of 55.3 percent for the 1960-1980 period. The predicted rates of increase for this group for the ten-year periods are 32.5 percent for 1960-1970 and 17.2 percent for 1970-1980. This rapid growth results from the national trend towards greater longevity. Another factor is a projected slight inmigration of this group into the State.

This rapid increase is expected to bring rising demand for the wide array of special services which this group desires, especially in the health field. Elderly persons spend more time in hospitals than other people. The advent of Medicare and the fruition of pensions and retirement plans give these people more money to meet their demands. This will cause the development of special facilities for the aging in almost all sections of the State. Support of the elderly will also represent an increasing burden on the rest of the economy.

In summary, Tennessee is projected to have an increasingly unfavorable population mix, with an increasing percentage of elderly persons and a smaller percentage of younger persons. The shares of both the youngest group (under 18 years) and the productive group (18-64 years) are projected to decline. However, these projections follow a national trend, so that the Tennessee population mix may be less unfavorable compared to that of the nation. However, this trend should be a cause for concern, since a smaller percentage of the population would be supporting a larger dependent group.

Population Projections to the Year 2000

Tennessee is projected to gain steadily in population from the present time to the year 2000, but at a rate which may be slower than that for the United States. The population of Tennessee is predicted to increase from 4,301,900 in 1980 to 5,024,000 in 2000. This represents a projected population increase of 16.8 percent from 1980 to 2000 and 29.4 percent from the 1966 estimated population (3,883,000). The projected increases in population from 1950 and 1960 to 2000 are 72.3 percent and 40.8 percent, respectively.

The projected 1966-2000 growth rate is slower than the rate for the nation predicted by the most conservative of four Census Bureau projections for the 1966-2000 period, which is 43.9 percent. This should be interpreted with caution, however. The possibilities of migration between states are so great that no projections for individual states are made so far into the future. The Tennessee projection is a geometric extrapolation of the trend of the 1940, 1950 and 1960 Censuses plus the 1965 Census estimate. This is a different method from the national projection. Therefore, this is only an extremely rough comparison of the projected population growth rates for Tennessee and for the nation.

Labor Force Projections

The labor force projections show the following interesting characteristics.

(1) A significant increase in the total labor force of the state from 1960 to 1980.

(2) Most of the increase is accounted for by females rather than males.

(3) The rate of increase in the female labor force for 1960 to 1970 and from 1970 to 1980 is significantly higher than the rate of increase in the male labor force.

(4) Tremendous differences in growth rates between one age-sex group and another.

(5) The rates of change for the 1960-70 period are different from those of the 1970-80 period for most age-sex groups.

From 1960-1980, the total labor force is projected to increase by 35.4 percent. The female labor force is predicted to grow by 85.3 percent, compared to a projected increase of 11.4 percent in the male labor force. Females represent 78.3 percent of the projected increase in the total labor force from 1960 to 1980.

The female labor force should grow much faster than the male labor force in both the 1960-1970 and the 1970-1980 periods. In the 1960's, the total labor force is projected to increase by 17.6 percent, the female labor force by 40.3 percent, and the male labor force by 6.6 percent. The total labor force should increase by 11.4 percent from 1970 to 1980, with females projected to increase by 32.2 percent compared to a 4.4 percent increase for males.

This tremendous increase in the female labor force is a continuation of the 1950-60 trend of increase in female participation rates which resulted from increasing acceptance of females in various jobs, the opening of new employment opportunities for females, and the drastic decline in male employment

FIGURE 4

TENNESSEE: LABOR FORCE BY AGE GROUPS
1960-1980

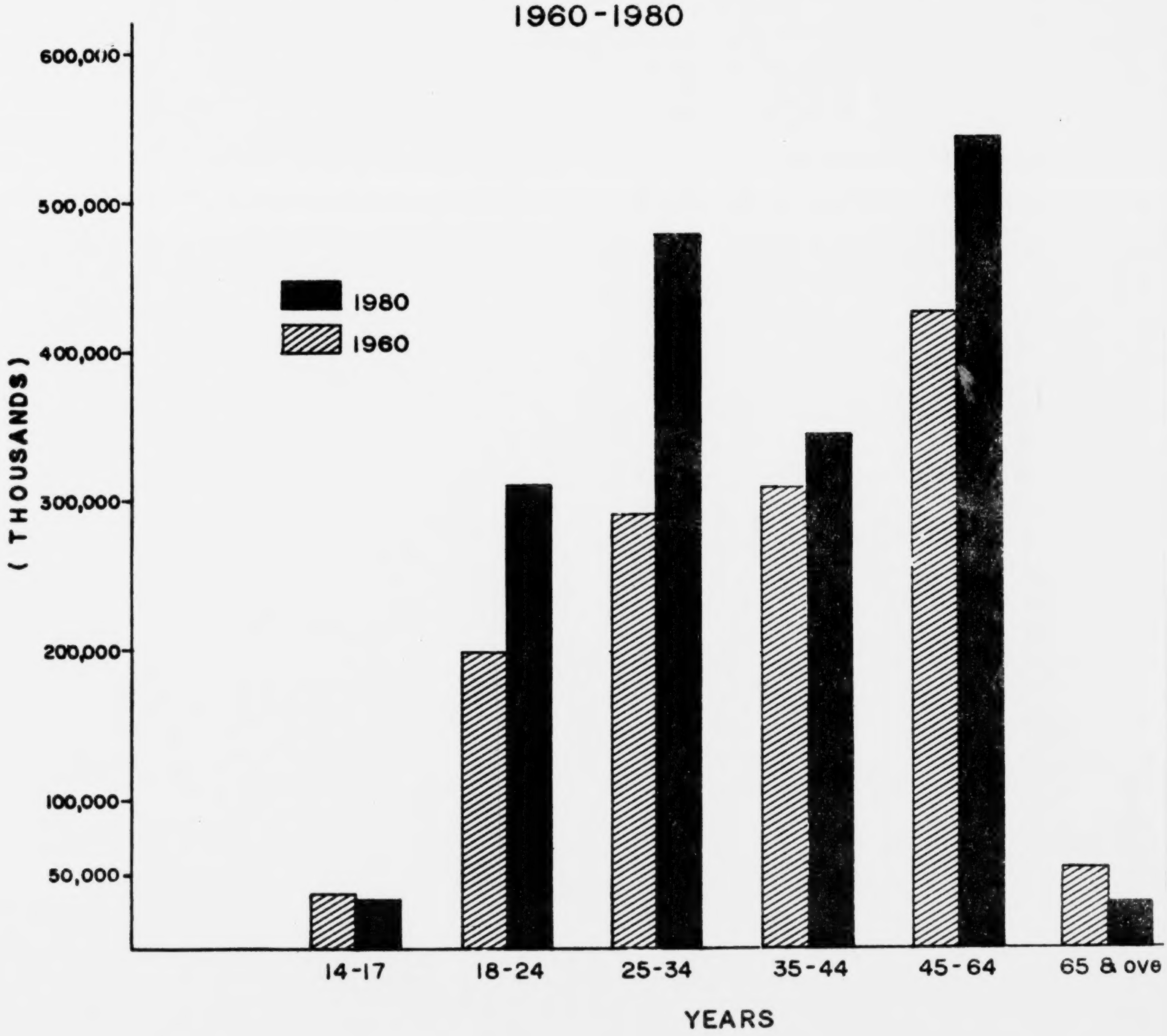
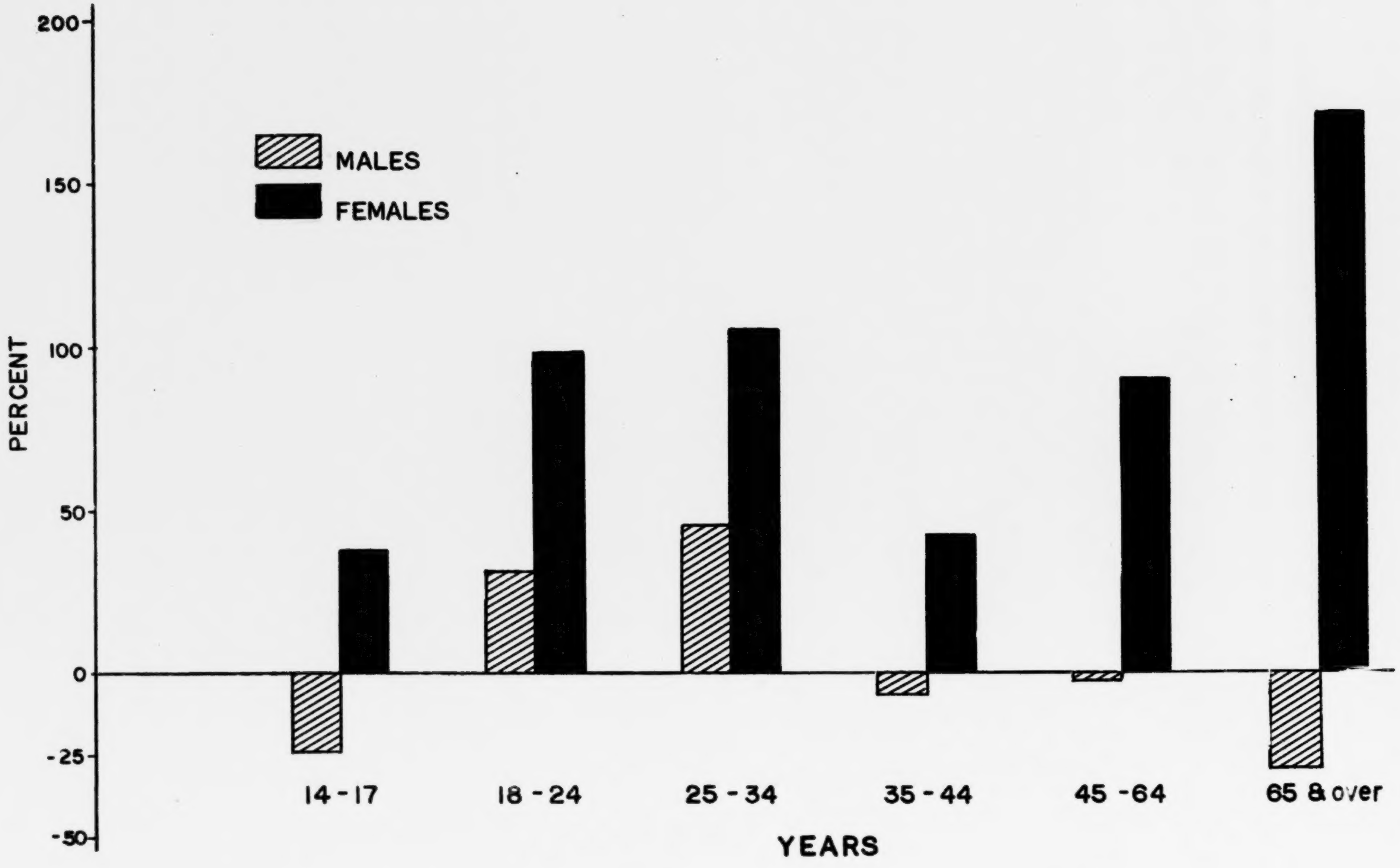


FIGURE 5

TENNESSEE: PERCENTAGE CHANGE IN LABOR FORCE BY AGE AND SEX
1960 - 1980



in agriculture which compelled many women to become breadwinners. The rising participation rates explain a large part of the projected increase of the female labor force.

The projected growth rate for the male labor force from 1960 to 1980 is 17.6 percent while that for the female labor force is 85.3 percent. These trends reflect the slow growth that occurred between 1950 and 1960 in total male labor force. In contrast, for the same period, the total female labor force increased by 36.8 percent.

The projected low growth in total male labor force is due primarily to outmigration that occurred in the 1950-60 decade which is projected to continue in the years to come.

Table 7 shows the projected participation rates for the various age groups in both sexes. The participation rate of an age group simply means the percentage of that age group which is seeking employment or is already employed.

An examination of Table 7 reveals projected declines in the labor force participation rates of males 14-17 years old in 1970-1980 and in males 18-24 years old in both the 1960-1970 and the 1970-1980 decades. These declines are attributable to the higher propensity of males of this age group to obtain advanced training. This is a reflection of an increasing demand for higher education to fill the more lucrative jobs.

TABLE 5

TENNESSEE LABOR FORCE BY AGE AND SEX, 1950-1980

Age Groups	MALES 1950	MALES 1960	MALES 1970	MALES 1980	FEMALES 1950	FEMALES 1960	FEMALES 1970	FEMALES 1980
14-17	30,400	27,131	25,901	20,774	8,795	9,973	12,748	12,916
18-24	141,380	126,433	168,865	167,350	66,095	72,031	121,640	144,038
25-34	217,580	198,565	218,987	291,054	78,975	91,096	117,238	187,826
35-44	203,660	206,391	184,561	194,359	76,350	103,024	117,710	148,515
45-64	239,510	287,561	311,288	285,524	73,710	135,794	202,453	257,607
65&over	47,760	41,314	36,960	29,500	7,755	14,632	26,487	39,727
	880,290	887,395	946,562	988,561	311,680	426,550	598,276	790,629

TOTAL

Age Groups				
14-17	39,195	37,104	38,649	33,690
18-24	207,475	198,464	290,505	311,388
25-34	296,555	289,661	336,225	478,880
35-44	280,010	309,415	302,271	342,874
45-64	313,220	423,355	513,741	543,131
65&over	55,515	55,946	63,447	69,227
	1,191,970	1,313.945	1,544,838	1,779,190

TABLE 6
LABOR FORCE
PERCENT DISTRIBUTION OF TOTAL

Age Groups	MALE 1950	MALE 1960	MALE 1970	MALE 1980	FEMALE 1950	FEMALE 1960	FEMALE 1970	FEMALE 1980	TOTAL 1950	TOTAL 1960	TOTAL 1970	TOTAL 1980
14-17	3.5	3.1	2.7	2.1	2.8	2.3	2.1	1.7	3.3	2.8	2.5	1.9
18-24	16.1	14.2	17.8	16.9	21.2	16.9	20.2	18.2	17.4	15.1	18.8	17.5
25-34	24.7	22.4	23.1	29.4	25.4	21.4	20.2	23.7	24.9	22.1	21.8	26.9
35-44	23.1	23.2	19.5	19.7	24.5	24.2	19.5	18.7	23.5	23.6	19.5	19.3
45-64	27.2	32.4	32.5	28.9	23.6	31.8	33.6	32.6	26.2	32.2	33.2	30.5
65&over	5.4	4.7	3.9	3.0	2.5	3.4	4.4	5.1	4.7	4.2	4.1	3.9
Percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Distribution of Labor Force	73.8	67.5	61.9	57.7	26.2	32.5	38.1	42.3	100.0	100.0	100.0	100.0

TABLE 7
LABOR FORCE PARTICIPATION RATES BY AGE-SEX GROUPS

Percent of Population in Labor Force	MALE 1950	MALE 1960	MALE 1970	MALE 1980	FEMALE 1950	FEMALE 1960	FEMALE 1970	FEMALE 1980
Total 14 & over	77.6	74.0	73.3	72.6	25.7	32.8	42.1	49.1
14-17	27.9	21.4	24.8	18.5	8.0	8.2	12.9	12.9
18-24	78.4	76.2	63.9	62.2	33.9	41.7	43.5	50.8
25-34	90.0	93.3	93.9	92.3	30.2	38.8	49.4	58.1
35-44	93.5	93.5	93.7	93.5	33.1	42.9	53.2	65.1
45-64	86.5	85.4	84.9	83.5	25.1	37.1	49.9	65.8
65&over	43.9	30.4	21.0	14.6	6.3	8.9	11.2	14.3

Table 7 also shows interesting changes in the participation rates of males in the 25-34 year age group. The rate rose from 90 percent in 1950 to 93.3 percent in 1960. The rate is predicted to remain above 90 percent throughout the projection period. These high rates are favorable signs, since this age group is a highly productive group. They may also reflect improved educational systems that make it possible for almost everyone who is willing to work to be trained for gainful employment.

The participation rate for males 35-44 years old are projected to be nearly constant at 93.5 percent. This appears to be the national trend. This group is usually well established in careers, and has a relatively low mobility ratio.

The slight decline in the rate of males in the 45-64 year age group is a reflection of the sharp decline in agricultural employment that caused the retirement of many farmers in this group during the 1950-1960 period. The trend toward earlier retirement from nonfarm employment that is now under way may become a more important element in the declining participation rate in this group that is projected for the 1960-1980 period.

The participation rate of males in the 65-years-and-over age group is expected to decline sharply in the next few years. This decline is the result of the retirement of many elderly workers in marginal agricultural employment during the recent past coupled with an almost universal trend toward retirement at 65 in nonfarm employment. Increased pension plans constitute an added incentive toward retirement at 65 or earlier, with resulting lower participation rates for males in this age group.

From Table 7 it can be seen that female participation rates for all age groups are on the increase. This is to be expected since the trend of female entry into the labor force in the 1950's has continued and there is no evidence to indicate any reversal of the trend, especially with the complete change in attitude toward females entering all sectors of industry from manufacturing to services.

The second interesting aspect about Table 7 is that the range of increase in participation rates between one age group and another is expected to be high. The increase ranges from 4.7 percent for females 14-17 years of age from 1960 to 1980 (8.2 percent to 12.9 percent) to 28.7 percent for the female 45-64 age group (37.1 percent to 65.8 percent).

The third important characteristic is that female participation rates for the age groups between 25 and 64 show a continuous increase from 1960 to 1980. Participation rates for the 35-64 age group are expected to be higher than those for younger age groups, as women whose children have attained school age or have grown up reenter the labor force. Many younger women are pursuing higher education or homemaking.

It can not be concluded that changes in participation rates are at the base of the projected increase in labor force for <ins>all</ins> groups in the state of Tennessee. Changes in population among age groups also affect changes in labor force composition.

However, changes in labor force components are due to other economic and social factors. Figure 4 shows the <ins>changes</ins> in total labor force by age group between 1960 and 1980. The following are significant characteristics.

All age groups are projected to increase during the 1960-1980 period, except the 14-17 year and 60-65 year male groups. The decline in the 14-17 year group is primarily caused by the increasing propensity of people in this age bracket to defer entry into the labor force in favor of further education. Some reduction of this group may be caused by the outmigration of parents of these persons.

All other age groups are expected to increase in total number, with females projected to increase more than males in all cases. The increases in the 18-24 and 25-34 year groups are caused by the entry into the labor force of the large number of babies born in the late 1940's and early 1950's. The 35-64 year age group is forecast to show a smaller increase (with a decrease among males) as a result of outmigration and low birth rates during the years when these persons were born. The 65-and-over group is expected to show an increase among females and a sharp decline among males. The increase among females is the result of generally rising participation rates among females, while the male decline is primarily due to earlier retirements.

If the trends of the 1950-1960 period were continued, a serious imbalance between male and female employment would develop in Tennessee. This imbalance appears in the 1970 and 1980 projections, which show almost full employment for females coupled with high unemployment rates for males. This imbalance was created by the net decline in male employment which occurred during the 1950's coupled with the rapid increase in female employment, which was partly in response to wives replacing unemployed farmer husbands as breadwinners.

This trend obviously cannot continue, since migration trends seem to be responsive to trends in male employment. Therefore, sharp declines in male employment tend to cause migration from Tennessee or migration from rural to urban areas within the State. Therefore, outmigration has been projected to occur in Tennessee during the 1960's, with a higher rate of outmigration in the 1970's.

Occupational Projections

Before the analysis of occupational projections, it should be emphasized at the outset that the projections of occupations for 1970 and 1980 follow directly from the population, employment, and labor force projections which have already been discussed. This also implies that the same projections procedure was applied to the occupation projections. Primarily, the 1950-60 trend of occupational distribution of labor force has been projected to 1970 and 1980. This results, of course, in accelerated rates of decline for industries which declined in 1950-60 and vice versa. However, checks and balances are introduced into the statistical manipulations so that future projections will be realistic as well as in logical sequence to population growth and labor force growth.

Many aspects of the labor force and population projections will have their repercussions on the occupational distribution of labor force. First, the increasing female participation rates of the 1950's and 1960's which are projected to continue will cause increasing participation of females in many occupations that have been predominantly male.

Second, employment projections, and the assumptions regarding future employment trends reflect the tendency for an increase in the more specialized occupations that are less affected by fluctuations and high unemployment rates. An example is the projected accelerated growth in professionals contrasted to the accelerated decline in laborers and farm managers.

Third and most important of all is the fact that the occupational trend is a resultant of the sectoral changes in employment. That is, shifts in employment and production from the extractive sector to the productive and services sectors are the bases for demand for certain occupations which ultimately lead to higher employment in these occupations.

With the above considerations in mind, the occupational distribution of the Tennessee labor force shall be analyzed. The interpretation of the findings will be carried within the present Tennessee economy and its demographic structure on the one hand, and our assumptions regarding future population growth on the other hand.

Table 8 shows the following characteristics of projected occupational trends:

(1) Projections for professionals, clerks, salespeople and operatives show continuous and substantial increases from 1960 to 1980.

(2) Craftsmen show a very slow projected increase.

(3) Service workers should increase from 1960 to 1970 and decline from 1970 to 1980, while managers are predicted to decline from 1960 to 1970, and grow from 1970 to 1980.

(4) There is a continuous, uninterrupted and substantial decline forecast for laborers.

This course of events seems to be compatible with national trends in most respects. The total employment by occupation; rather than age composition, sex composition, or the spatial distribution of the projected occupations, is being discussed. In spite of this fact, however, some causes of these trends can be explained.

Recently, Tennessee has been following the national trend in terms of industrial mix, income, and other economic characteristics. The main characteristic has been the shift from an agrarian-rural base to an industrial-urban base. Also, there was a shift from static development and low income to dynamic industrial change and income growth. Associated with these developments are the substantial changes in the level of productivity in the agricultural sector. This is due primarily

TABLE 8
ACTUAL AND PROJECTED OCCUPATIONAL EMPLOYMENT FOR TENNESSEE
1950-1980

Occupation Group	MALES				FEMALES			
	1950	1960	1970	1980	1950	1960	1970	1980
Professionals	46,080	62,939	88,048	134,920	35,276	49,211	73,292	97,613
Managers	243,472	161,382	113,243	151,656	14,112	16,397	21,214	35,140
Clerks	38,752	46,347	61,659	89,044	63,378	93,828	160,915	234,273
Salespeople	47,744	55,342	61,899	76,995	23,779	28,651	35,157	54,663
Craftsmen	129,385	146,003	159,455	156,497	4,272	4,862	4,834	3,905
Operatives	151,580	171,331	233,381	257,265	63,227	81,650	86,273	110,257
Service Workers	41,993	44,315	55,950	44,994	76,304	100,842	139,740	136,433
Laborers	127,742	96,564	66,992	26,973	9,601	6,330	4,725	2,570
Not Reported	12,374	34,816	65,164	57,651	6,575	21,447	57,305	56,220
Total	839,122	819,039	905,791	995,995	296,524	403,218	583,455	731,074

TOTALS

Occupation Group	1950	1960	1970	1980
Professionals	81,356	112,150	161,340	232,533
Managers	257,584	177,779	134,457	186,796
Clerks	102,130	140,175	222,574	323,317
Salespeople	71,523	83,993	97,056	131,658
Craftsmen	133,657	150,865	164,289	160,402
Operatives	214,807	252,981	319,654	367,522
Service Workers	118,297	145,157	195,690	181,427
Laborers	137,343	102,894	71,717	29,543
Not Reported	18,949	56,263	122,469	113,871
Total	1,135,646	1,222,257	1,489,246	1,727,069

TABLE 9

REVISED DISTRIBUTION OF EMPLOYED PERSONS AMONG OCCUPATIONS BY SEX, 1950-1980

	1950			1960			1970			1980		
Occupation	M	F	T	M	F	T	M	F	T	M	F	T
Professionals	5.5	11.9	7.2	7.7	12.2	9.2	9.7	12.6	10.8	13.5	13.4	13.5
Managers	29.0	4.8	22.7	19.7	4.1	14.6	12.5	3.6	9.0	15.2	4.8	10.8
Clerks	4.6	21.4	9.0	5.7	23.3	11.5	6.8	27.6	14.9	8.9	32.0	18.7
Salespeople	5.7	8.0	6.3	6.8	7.1	6.9	6.8	6.0	6.5	7.7	7.5	7.6
Craftsmen	15.4	1.4	11.8	17.8	1.2	12.3	17.6	0.8	11.0	15.7	0.5	9.3
Operatives	18.1	21.3	18.9	20.9	20.2	20.7	25.8	14.8	21.5	25.8	15.1	21.3
Service Workers	5.0	25.7	10.4	5.4	25.0	11.9	6.2	24.0	13.1	4.5	18.7	10.5
Laborers	15.2	3.2	12.1	11.8	1.6	8.4	7.4	0.8	4.8	2.7	0.4	1.7
Not Reported	1.5	2.2	1.7	4.3	5.3	4.6	7.2	9.3	8.2	5.8	7.7	6.6
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Note: Detail may not add to 100 due to rounding.
M = Male F = Female T = Total

Sources: U.S. Census, 1960, U.S. Statistical Abstract, 1954, SPO Manpower Projections (Revised) to changes in technology, transportation costs and trends, labor mobility, and other institutional factors. This phenomenon explains the drastic projected decline in managers from 1960 to 1970 due to the fact that a substantial portion of the managers were engaged in agricultural pursuits. The reversal of the trend after 1970 will be due to the growth of managerial activity in the industrial and commercial sectors coupled with a slowing in the further decline of a very small agricultural sector.

Technological change also explains the predicted drastic decline in laborers from 1960 to 1980.

The argument posed is substantiated with the recent findings of the study entitled Tennessee Industrial Economy by the Bureau of Business and Economic Research of Memphis State University in September 1966. Table 8 in that study shows a total decline in income received from the extractive sector (farming and mining) from 1950 to 1964. Income declined by 9.2 percent in farming and 5.6 percent in mining. On the other hand, income from the total productive sector increased by 122.9 percent and the services sector increased by 174.4 percent for the same period. These shifts in the shares of income reflect, to a great extent, shifts in productivity from one sector to another and from one occupation to another. Thus adjustments over time should produce the results illustrated in

Table 8.

The increased demand for labor by the productive sector means higher rewards for jobs within the operative, clerical and craftsmen groups. The highest increase in income comes from the service sector and this manifests itself in the projected increase of labor force in professional, sales people and non-farm manager occupations, many of whom will be employed in services industries. The evidence for these trends will be substantiated when the industrial base analysis is made.

It can be concluded that first, the projected occupational distribution of Tennessee's labor force is compatible with recent and present trends in occupational structure and the industrial setting. Second, the recent trends in national technological advances that enhance productivity and raise income levels has been paralleled by the developments in Tennessee. The Tennessee projections, as such, are compatible with national occupational projections.

The second important aspect concerning the projected occupational distribution of labor force is the sex composition of the changes in occupations. The most significant aspect of the substantial entrance of females into the labor force in the 1950-60 period is reflected, not only in higher employment levels for the state, but also by entrance of females into relatively high paying occupations. Table 10 shows the projected occupational distribution for males and for females. The following characteristics deserve attention.

First, in most of the occupations the increase in male labor force is exceeded by an increase in females which is a manifestation of the entrance of female labor into a wider variety of occupations. This is reflected in the projected increase in managers, clerks, professionals, salespeople, and operatives.

Second, in the operatives group the females are expected to surpass the males by 1980 and female salespeople will just about match the males by 1980. This indicates the continued shift of these jobs to female labor.

The trends from 1960 to 1980 indicate continuation of the trend of increased female employment in apparel, textile and related industries. These gains can be partially explained as simple extrapolations of the trends of the 1950-1960 period, when much of the increase in total female employment occurred in the textile and apparel industries. Continued female entrance into all occupations is expected to continue until 1980. It should be remembered that in some regions, the female labor force may become almost exhausted, thereby placing ceilings on the number of females entering some occupations. This may result in the employment of larger numbers of males in many non-farm occupations during the 1960-1980 period. These developments which will result in somewhat higher employment for males and somewhat lower employment for females by 1980, although the total level of employment will be the same as projected. Or, the ceiling of total female employment may result in a reduction in total employment, since males would probably not be hired in many production jobs in apparel plants that are generally filled by females. The actual projections of employment are based on extrapolations of trends of the 1950-1960 period, when total male employment declined while total female employment increased rapidly. The decline in male employment was primarily the result of a precipitous drop in agricultural employment which was larger than the gain in non-agricultural employment of males at that time. The large gain in female employment was induced, in part, by the economic necessity of women in marginal farm families becoming family breadwinners.

One question remains to be answered and this is left for future developments. It is the compatibility of the projected income growth, the projected occupational distribution, and the future age-sex structure of the labor force with the projected trends of outmigration. The difficulty in passing a judgment lies in the fact that there is a two-way cause and effect relationship between both developments. With favorable employment conditions and the appropriate industrial mix, the migration trend could be reversed and growth could reach unprecedented levels. The task of appropriate manpower planning is the main element in this development. An analysis of the future economic base (i.e. the employment structure) will be made in the next section and inferences from examining the projections of the economic base might suggest some answers to the question just posed.

Industrial Projections

Before any analysis of the employment projections for the state of Tennessee is begun, the significance of the main assumptions upon which the whole methodological framework is founded should be emphasized.

First, the 1950-60 trend of employment and labor force has been projected with no alterations or adjustments. Thus, the resulting projections are by no means predictions, bench marks or intelligent guesses about the 1970 and 1980 performance. On the contrary, recent trends have indicated a completely different picture of the Tennessee economic and demographic structure. It is necessary, however, to show, by means of projections of a trend, what the future characteristics of the economy would look like when little public and private effort is exerted to induce and generate economic growth in the state and compare that with actual performance after a great deal of concerted effort has taken place.

To begin with, it is axiomatic that any level of economic achievement for any state necessitates certain manpower requirements. A state that has been experiencing rapid and continuous economic growth usually experiences population growth which is associated with in-migration and also a high rate of employment.

Second, one basic assumption underlying the methodology (see Part I of study) is that population, and consequently, labor force, is a function of the level of employment. The size of the population of a small area, given a certain range of unemployment, will adjust to the level of unemployment rather than the other way around. Thus, the projected employment at the end of the period, in these small areas, is taken as the basic determinant of the rate of migration during the period and the size of the population at the end of the period.

Third, the total state employment projections in this section are aggregated from county employment projections. Careful examination of the methodology in Part I of this study will explain the procedures by which the projections were computed.

TABLE 10
PERCENTAGE DISTRIBUTION OF REPORTED INDUSTRIAL EMPLOYMENT IN TENNESSEE, 1950-1980

	1950		1960		1970		1980	
INDUSTRY	No.	Percent	No.	Percent	No.	Percent	No.	Percent
Agriculture, Etc.	248,565	22.3	132,810	11.2	64,020	4.3	33,986	2.0
Mining	14,451	1.3	8,794	0.7	9,093	0.6	14,068	0.8
TOTAL EXTRACTIVE	263,016	23.6	141,604	12.0	73,113	4.9	48,054	2.7
Construction	79,983	7.2	82,475	7.0	80,253	5.4	74,093	4.4
Durable Manufacturing	89,287	8.0	119,345	10.1	193,236	13.0	297,847	17.2
Non-Durable Manufacturing	151,546	13.6	198,552	16.8	280,479	19.0	319,859	18.5
Transportation, Utilities, Etc.	76,961	6.9	77,802	6.6	79,835	5.4	74,806	4.3
TOTAL PRODUCTIVE	397,777	35.7	478,144	40.5	633,803	42.6	766,605	44.4
Wholesale Trade	34,695	3.1	41,549	3.5	52,331	3.5	61,558	3.6
Food Stores	32,034	2.9	33,211	2.8	33,750	2.3	28,989	1.7
Eating Places	27,477	2.5	27,473	2.3	31,470	2.1	27,299	1.6
Other Retail Trade	97,771	8.8	116,359	9.8	139,064	9.3	137,332	8.0
TOTAL TRADE	191,977	17.2	218,592	18.5	256,615	17.2	255,178	14.8
Finance, Insurance, Etc.	25,657	2.3	39,806	3.4	69,541	4.7	95,517	5.5
Business Services	22,547	2.0	28,129	2.4	58,645	3.9	79,438	4.6
Personal Services	82,125	7.4	93,596	7.9	105,862	7.1	97,970	5.7
Entertainment Services	6,708	0.6	7,103	0.6	7,799	0.5	9,983	0.6
Educational Services	44,581	4.0	62,798	5.3	102,746	6.9	138,146	8.0
Other Professional Services	42,721	3.8	66,883	5.7	110,207	7.4	154,152	8.9
Public Administration	37,431	3.4	45,129	3.8	70,915	4.8	82,026	4.7
TOTAL SERVICES	261,770	23.5	343,474	29.1	525,715	35.3	657,232	38.0
TOTAL EMPLOYMENT	1,114,540	100.0	1,181,814	100.0	1,489,246	100.0	1,727,069	100.0

Note: Employment in "Industry Not Reported" is disregarded

The total employment by sectors and the particular industries that comprise these sectors for the years 1950, 1960, 1970 and 1980 is shown by Table 10, and Figures 6, 7, and 8.

Each sector will be analyzed by itself and will also be compared with the other sectors.

The Extractive Sector

The extractive sector is concerned with the removal of natural resources from the soil, air, or water. The largest extractive industry is agriculture. Other extractive activities are mining, forestry, and fisheries. Agriculture and mining are the two significant extractive activities in Tennessee.

The extractive sector shows continuous and drastic decline from 1950 to 1980. The projected employment is 73,113 in 1970 and 48,054 in 1980 as compared to 141,604 in 1960. This sector is composed of agriculture, forestry, and fisheries as one aggregate industry and mining as the other one. Surprisingly, Table 10 shows an increase in mining employment from 1970 to 1980. Figure 7 shows the projected decline in the extractive sector of 48.4 percent from 1960 to 1970, 34.3 percent from 1970 to 1980 and 65.1 percent for the entire 1960-1980 period. Figure 8 shows the precentage change in the

FIGURE 6

PROJECTED EMPLOYMENT BY AGGREGATE SECTORS
1950, 1960, 1970 AND 1980
TENNESSEE

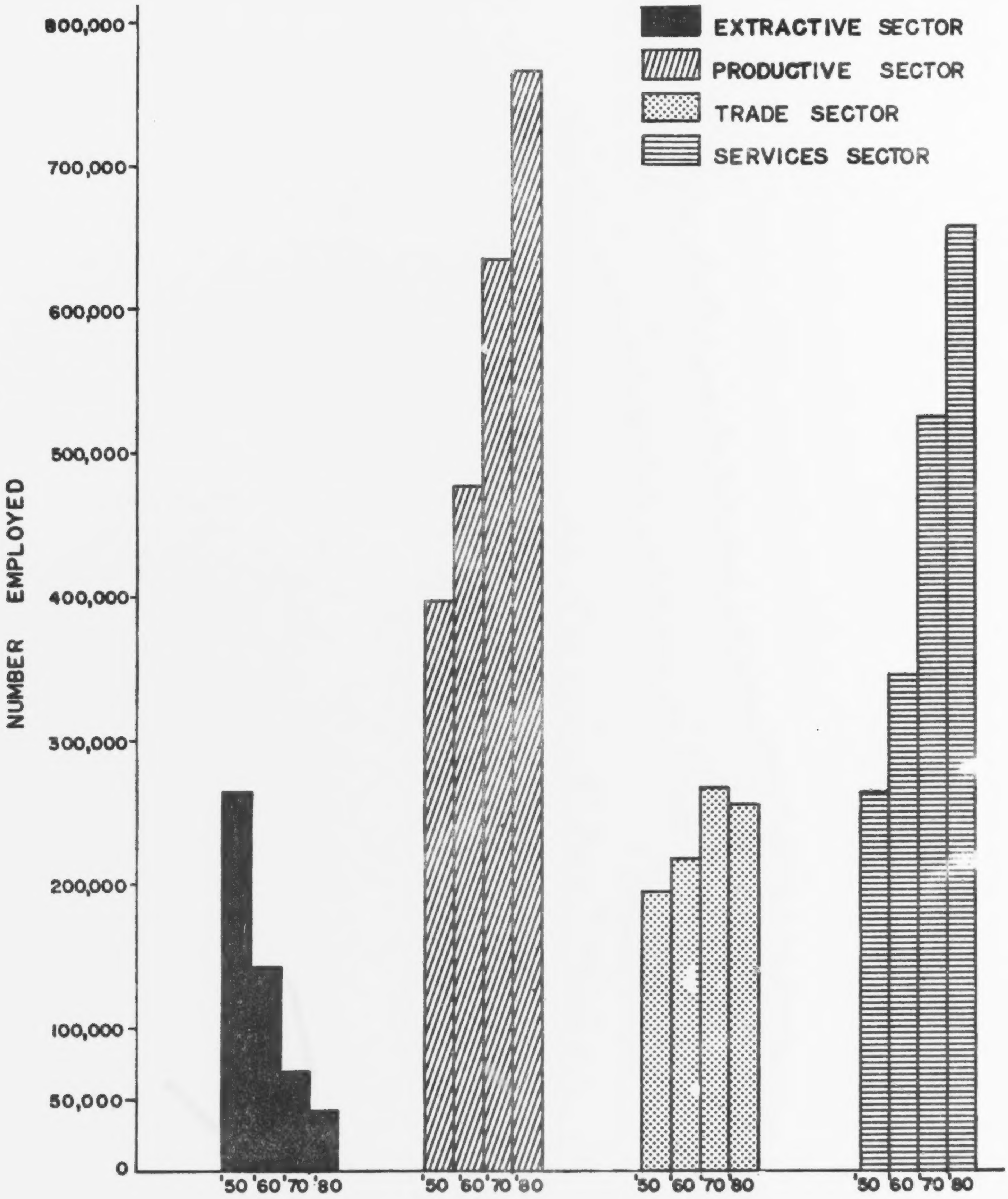


FIGURE 7

PERCENTAGE CHANGE IN PROJECTED EMPLOYMENT BY SECTOR
1960-1970; 1970-1980; 1960-1980
TENNESSEE

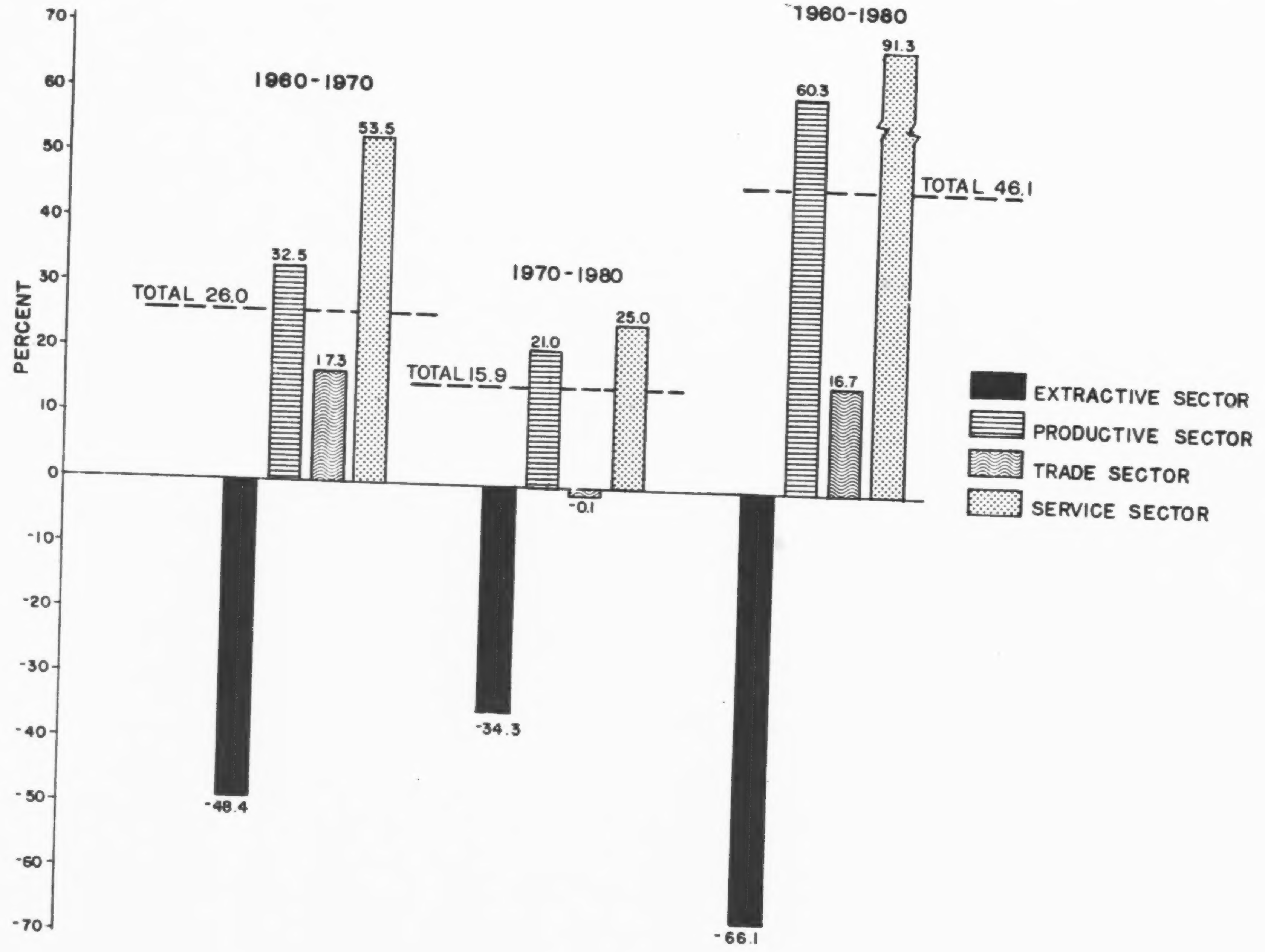
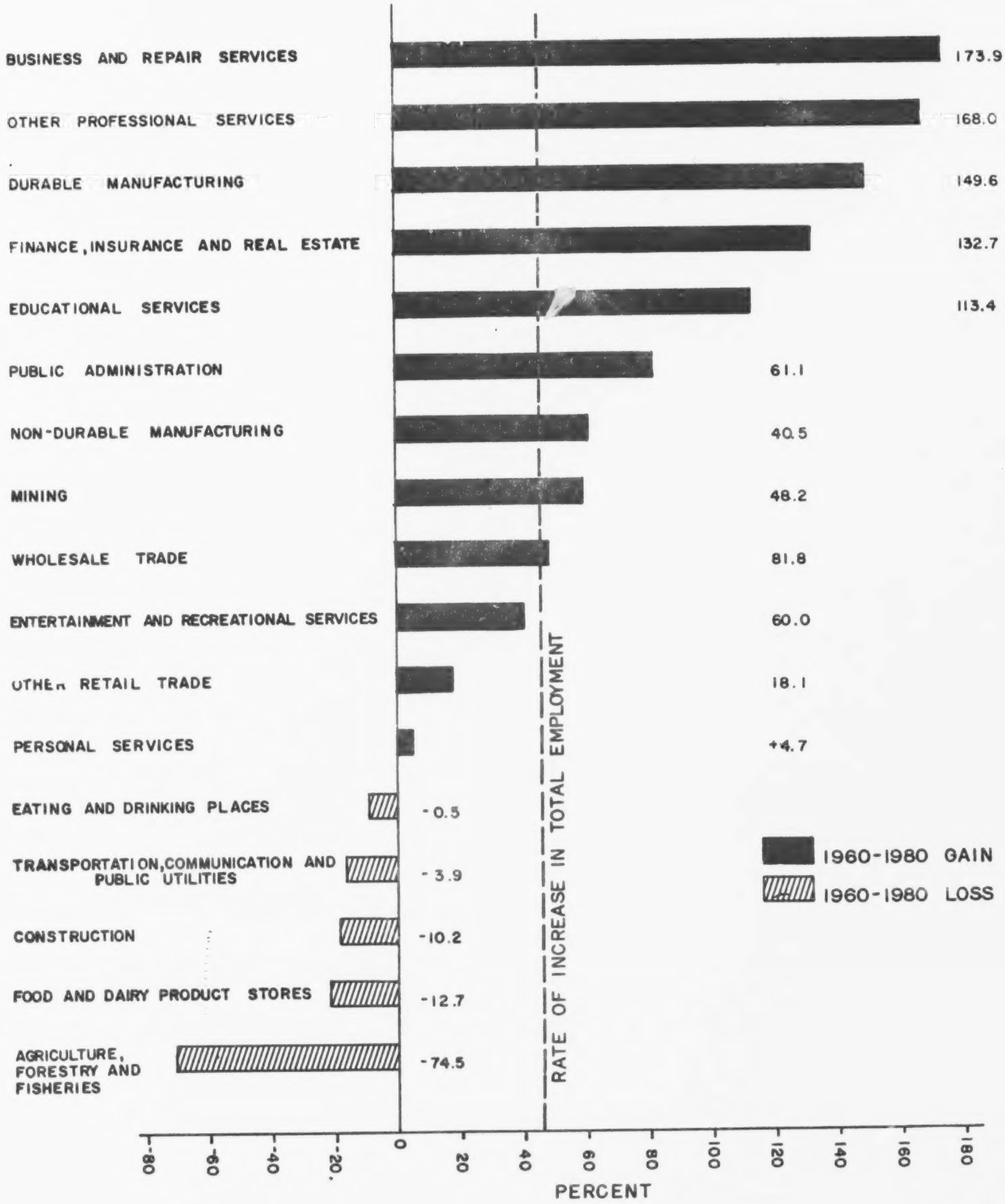


FIGURE 8

PERCENTAGE CHANGE OF PROJECTED EMPLOYMENT BY INDUSTRY
1960 - 1980
TENNESSEE



projected employment by industries. The industries are arranged by order of magnitude of change during the 1960-1980 period from highest to lowest. Mining is shown to be tenth with a total change of +12.9 percent and the agriculture, forestry, and fisheries industry to have the highest rate of decline among all industries of 70.4 percent.

Again, it should be emphasized that this is a projection of the 1950-1960 trend. The projections reveal the impact of the great transition of the Tennessee economy from a predominantly agrarian state in 1950 to a more industrialized condition in 1960, and the results which would occur in 1970 and 1980 if the 1950-1960 trends were continued.

Secondly, this shows the impact of the high rate of outmigration of the 1950's in Tennessee, which occurred primarily in the agricultural sector. The second part of this paper, which discusses the subregional projections, will clearly demonstrate the location of these outmigration trends. Primarily they will be in the Kentucky Lake Region, the Upper Cumberland Region, and the Jackson Region.

Thirdly, this trend is the result of migration from rural areas to urban centers within the State combined with the industrialization of some small communities where the main industries were textiles and apparel. These developments created new employment for women, partly in response to male underemployment caused by changes in agricultural technology.

This decline in extractive sector employment is a national trend. Since technology and its impact on productivity is at the base of the national trend, Tennessee will follow it at a faster rate due to the past predominance of agricultural employment in the State.

The Productive Sector

The productive sector takes the raw materials produced by the extractive sector and adds value to them either by converting them into forms which are useful for further processing and consumption, or by transporting the materials through space or time. Manufacturing is the largest productive activity. Transportation and storage are other important productive activities.

The productive sector is the largest of the four sectors. It leads in size all the way from 1950 to projected 1980. While the productive sector is the largest and is continuously growing, it is second in growth rate to the services sector. The productive sector is projected to increase by about 24 percent from 1960 to 1970; about 19 percent from 1970 to 1980; and the total net increase from 1960 to 1980 is supposed to be about 48 percent.

This trend should not be surprising since the characteristics of the productive sector comprise the other part of the story of the extractive sector, i.e., the decline in employment in the extractive sector is compensated for by the increase in employment in the productive sector. The projected absolute increase in employment in the productive sector is 235,631 during the 1960-1980 period.

The productive sector is composed of the following aggregate industries or groups of industries:

(1) Construction
(2) Durable Manufacturing
(3) Non-durable Manufacturing
(4) Transportation, Communication and Public Utilities

Table 10 shows a strange arrangement in the employment projections for these four aggregate industries. Projections show on the one hand, durable manufacturing and non-durable manufacturing with relatively high percentage gains from 1960 to 1980; while, on the other hand, construction and transportation, communication and public utilities have a net loss of employment for the same period.

Durable manufacturing is the fastest growing of the four industries and, moreover, it ranks No. 3 in the rate of growth among all industries. It is supposed to increase by 130.2 percent. The main components of this rapid increase in employment in the durable manufacturing industry are electrical machinery and transportation equipment.

It should be emphasized that in a fairly industrialized state, the size as well as the rate of growth of the manufacturing industry as a whole doesn't surpass any of the services industries. In Tennessee, however, this phenomenon is, as mentioned earlier, due to the continuation of the trend of transition to rapid industrialization in the 1950-1960 decade. Next is non-durable manufacturing which ranks No. 7 (Figure 8) and is expected to increase by about 49 percent for the period examined. The main components of this increase are apparel plus furniture and fixtures. Other components that had a declining trend and reduced the total increase in employment in non-durable manufactures are tobacco and textile mill products which are supposed to decline substantially.

Construction, surprisingly, shows a predicted decline of 18 percent while transportation, communication and public utilities is projected to decline by 15.6 percent. How are these trends explained?

One explanation is the projected decline in the participation rates of males in age groups 14-17, 18-24, 45-49 and 65 and over, and relatively constant growth rates for the 35-44 year age group. This decline will have effects on the supply of factors side of the industry. Secondly, the trend has been for reduction of manpower requirements per capital input in both construction and transportation. Thirdly, the projections anticipate a tapering-off trend in large public works projects in the state which had its roots in the late 1950's.

The usual growth pattern of the transportation, communication and public utilities industry is slow since it is a complementary activity to the basic industries in the economy and doesn't usually rise at the same rate of increase of the basic activity primarily due to scale economies.

The Trade Sector

The next sector to be analyzed is called the trade sector. It distributes the products of the extractive and productive sectors to further processors or to the final consumers. This sector performs the merchandising function, and does not physically change the products in any way. The trade sector is composed of the following four aggregate industries:

(1) Wholesale Trade
(2) Food and Dairy Products Stores
(3) Eating and Drinking Places
(4) Other Retail Trade

There is predicted to be a net gain of about 9 percent from 1960 to 1970 followed by a net loss of 4 percent from 1970 to 1980. The total projected increase in employment from 1960 to 1980 is about 5 percent.

Examination of component industries of the trade sector reveals many similarities between this sector and the productive sector in terms of the relative change in projected employment. The only industries which are expected to have a net gain for the 1960-1980 period are the wholesale trade and other retail trade industries. The net increase in the wholesale trade industry is supposed to be 48.2 percent from 1960 to 1980 and ranks ninth among the 17 industries (Figure 8). Other retail trade is the slowest growing industry with a projected 18.1 percent increase and ranks eleventh.

On the other hand, the eating and drinking places industry is expected to decline in employment by about 0.5 percent and food and dairy product stores to decline by 12.7 percent for the same 1960-1980 period. How can these conflicting trends within one sector be explained?

First, the growth in the wholesale trade industry as a whole is parallel to and associated with the growth of the productive sector in general and with the durable and nondurable manufacturing industries in particular. Retail trade, on the other hand, although it grows in volume of sales in direct relationship to manufacturing, it does not grow proportionately in labor employment. This has been due to high labor productivity and labor substitution by modern marketing methods. The second explanation is the large-scale operation of the industry in the sense that gigantic stores are operated by a few people thus resulting in internal economies that accrue to the firm.

The decline in employment in eating and drinking places and in food and dairy products stores are probably both the results of relatively unattractive wage and working conditions in both industries. Slightly higher manpower requirements per dollar of capital input will probably reduce this decline to some extent.

It should be emphasized also that high levels of labor productivity and the resulting high wages are more characteristic of the services sector and particularly the professional occupations. This phenomenon is one explanation of the continuous shift in employment to this sector and its relative growth as compared to the other sectors.

The Services Sector

The services sector provides services desired by individuals or by businesses. It is not generally directly concerned with the production or handling of goods, as are the other sectors. This sector is predicted to grow faster than any other in Tennessee, as rising incomes and higher degrees of sophistication in the population create demands for more and different types of services.

The services sector is shown to be increasing in absolute terms continuously from 1950 to 1980 in Figure 6. The expected absolute net gain in employment is 246,119, which is the largest of all sectors. It is significant to indicate also that the relative or percentage net change is also very high, and much higher than that of the productive sector which is the largest sector in absolute size. Figure 7 shows projected net increases of 38.2 percent from 1960 to 1970, 22 percent from 1970 to 1980, and 69.2 percent from 1960 to 1980.

This is a general phenomenon that is characteristic of the nation and not only of Tennessee. The explanation lies in the increased rate of urbanization, industrial diversification, high investment (and consequently high productivity) in human capital, and above all, the advances in technology.

The following industries comprise the services sector:

Finance, Insurance, and Real Estate
Business and Repair Services
Personal Services
Entertainment and Recreational Services
Educational Services
Other Professional Services
Public Administration

Figure 8 shows that six of the seven industries show significant projected growth from 1960 to 1980, and only personal services is predicted to be more or less static at about 4.7 percent growth. Business and repair services and other professional services rank first and second among the 17 industries with growth rates over the 1960-1980 period of 173.9 percent and 168.0 percent respectively. The sharp increase in business and repair services may be partly due to the arbitrary classification of workers at a large Federal establishment in one of the smaller subregions as employees in this class. The large growth of employment at this establishment during the 1950-1960 period resulted in unnaturally high projections for employment in business and repair services in this subregion and for the State. This is reflected in the projections. Finance, insurance and real estate (Rank 4) should increase by 132.7 percent and educational services (Rank 5) should grow by 113.4 percent. Entertainment and recreational services and public administration are predicted to grow more slowly, by 60.0 percent and 61.0 percent, respectively. Thus four of the seven industries in the services sector are expected to more than double their employment by 1980.

It should be noted that the occupational projections in Section 3 of this chapter are based upon the historical employment trend in the employment sectors and industries. The higher productivity occupations such as professionals, managers, salespeople and clerks, among both males and females have been projected at accelerated growth rates. Thus it can be concluded that the total economic picture and the sectoral employment projections are compatible with the future distribution of occupations.

II. REGIONAL PROJECTIONS

The following are analyses of the nine planning regions of Tennessee. Each region is analyzed according to the size and age-sex composition of its population and labor force. Each regional analysis considers the size and sectoral distribution of total employment within the region. The final object of the planning region analyses is to show what changes occur in the sectoral distribution of the employed and the age-sex distribution of the populations of the region. The regional projections are also compared with the State projections in all areas.

Upper East Tennessee Region

Population

The population of the Upper East Tennessee region is expected to grow more slowly than that of the State. From 326,784 inhabitants in 1960, the population is projected to increase to 337,568 in 1970 and to 339,468 in 1980. The region ranks fifth in the State in size. The 1960-1980 projected population growth rate for this region is 3.8 percent, compared to 20.6 percent for the State. The region ranks eighth among the nine regions in rate of population growth.

The population mix of the region should turn unfavorable during the projection period. The regional population is analyzed by three major age groups. They are the dependent children (0-19 years), the active group (20-64 years), and the retirement group (65 years and over). A favorable population mix has a larger percentage of its population in the active group and in the children's group, and a relatively smaller retirement group, which no longer contributes to the economy and must be supported by the efforts of the active group. The children are learning the skills necessary for active participation in the economy during their adult years.

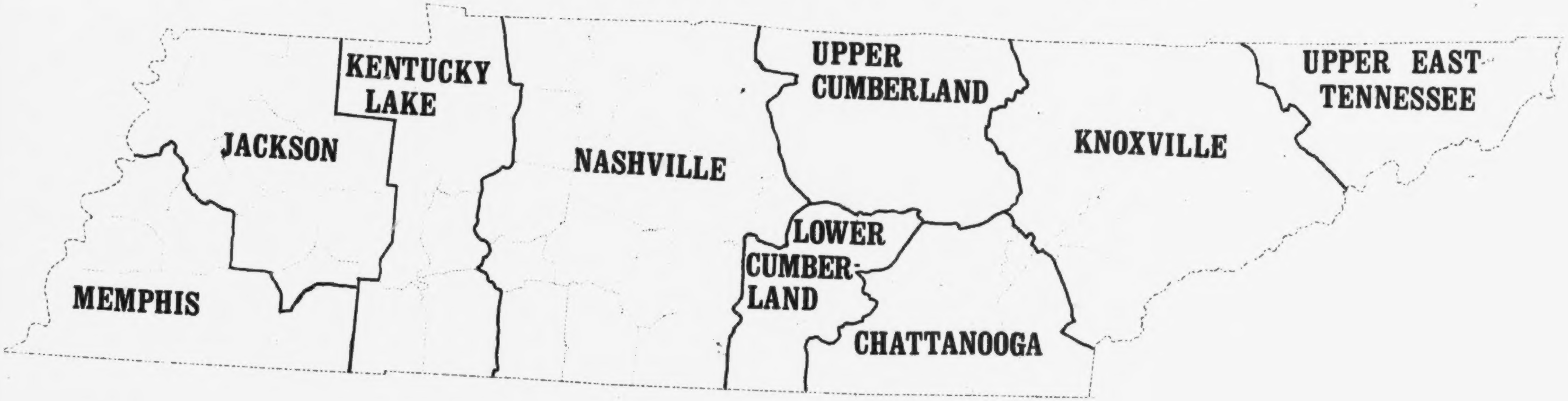
The percentages of total population in the various age groups for each projection year are shown below for the Upper East Tennessee region.

AGE	1960	1970	1980
0-19	39.7	37.4	36.7
20-64	52.4	52.6	51.7
65-+	7.9	10.0	11.5

The region has a slightly higher percentage of its population in the active age group in 1960 than did the entire State. By 1970, however, high outmigration, which results in the slow growth of the population, should cause the percentage of children to become lower than that for the State. The percentage of people in the active age group is predicted to be higher than that of the State in both the 1970 and 1980 projections. The

MAP I

THE PLANNING REGIONS OF TENNESSEE


MEMPHIS
JACKSON
KENTUCKY LAKE
NASHVILLE
UPPER CUMBERLAND
LOWER CUMBER-LAND
CHATTANOOGA
KNOXVILLE
UPPER EAST TENNESSEE

percentage in the retirement group, relatively low in 1960, should become relatively high while the percentage of children (0-19) had become considerably lower than that of the State in 1980. The 1980 percentages were 36.7 percent of the region and 39.8 percent for the State. These changes, coupled with an actual decrease projected for the male population in the region, suggest that the high outmigration included many young people who left the region to raise their families elsewhere. There is also a possibility that some young families migrated from the region, taking their younger children with them. This development, however, indicates that a serious problem of manpower replacement will occur after 1980 if the projection trends are realized. In fact, an absolute decrease in the 0-19 age group is projected for the region in the 1970's. The number of males in the 20-64 year age group is projected to increase in number by only 142 during the entire 1960-1980 period.

The region is likely to encounter serious manpower problems from small increases in the males of the active group and the relative decrease in children which are being trained for active roles in the economy in the future.

Labor Force

The potentially serious manpower problems referred to previously again appear in the labor force projections. The

TABLE 11

POPULATION OF TENNESSEE BY MAJOR AGE-SEX GROUPS, 1950-1980

AGE	1950		1960		1970		1980	
	Male	Female	Male	Female	Male	Female	Male	Female
0-19	636,626	623,217	722,231	702,799	809,118	790,748	865,281	845,148
20-64	874,433	922,458	878,559	954,789	952,175	1,043,693	1,007,125	1,107,111
65-+	112,048	122,936	139,901	168,810	176,064	233,103	201,414	275,321
Total	1,623,107	1,668,611	1,740,691	1,826,398	1,937,357	2,067,544	2,073,820	2,227,580

TOTAL POPULATION, 1950-1980

AGE	1950	1960	1970	1980
0-19	1,259,843	1,425,030	1,599,866	1,710,429
20-64	1,796,891	1,833,348	1,995,868	2,114,236
65-+	234,984	308,711	409,167	476,735
	3,291,718	3,567,089	4,004,901	4,301,400

PERCENTAGES

AGE	1950			1960			1970			1980		
	M	F	T	M	F	T	M	F	T	M	F	T
0-19	39.2	37.3	38.3	41.5	38.5	39.9	41.8	38.2	39.9	41.7	37.9	39.8
20-64	53.9	55.3	54.6	50.5	52.3	51.4	49.1	50.5	49.8	48.6	49.7	49.2
65-+	6.9	7.4	7.1	8.0	9.2	8.7	9.1	11.3	10.2	9.7	12.4	11.1
	100.0*	100.0*	100.0*	100.0*	100.0*	100.0*	100.0*	100.0*	100.0*	100.0*	100.0*	100.0*

* - Detail does not necessarily add to 100 percent due to rounding.

male labor force is predicted to be smaller in 1980 than it was in 1960. The accelerated entry of women into the labor force causes the total projected labor force to increase in actual numbers. There are fairly large increases in the female labor force in all age groups.

The male labor force 35-64 years of age, which contains many of the best-paid workers, is predicted to decline from 45,229 in 1960 to 44,216 in 1980. There is an increase in the 25-34 males group which is the result of the war babies entering the labor force. The decreases in the younger group are primarily due to many males in these groups postponing entry into the labor force in order to secure education. Declines in the prime age group is partly caused by the low birth rates of the depression years, accentuated by present and previous outmigration from the region. The region, like all regions which have high rates of outmigration, tends to lose its most promising citizens via the migration route. An increase in employment is required in order to retain more of the best equipped inhabitants and to stem the flow of outmigration.

The female labor force is projected to increase by slightly over 80 percent from 1960 to 1980. Most of this increase is due to sharply rising female participation rates in almost all age groups. The most rapid increase in the female labor force is in the 45-64 year group, which should rise by over 150 percent. A substantial increase in the female labor force 18-44 years of age is also foreseen. The number of females 14-17 years old is limited, primarily due to many girls in this group remaining in school. The labor force of the Upper East Tennessee region was more strongly male than in the State. The 1960 labor force in the region was 71 percent male, and the projected labor force of 1980 is predicted to be 56.9 percent male.

Employment

Employment in the Upper East Tennessee Region is projected to increase at a slower rate than the State average. Total employment in the area is projected to grow from 105,548 in 1960 to 134,326 in 1980. The percentage growth rate of employment for the 1960-1980 period for the region is predicted to be 27.4 percent, compared to 41.3 percent for the State. Since the population projection was dependent upon the employment projection, and the population projection (a dependent variable) showed slower growth for the region than for the State; it can be assumed that the projected employment growth rate in the region is less than that for the State.

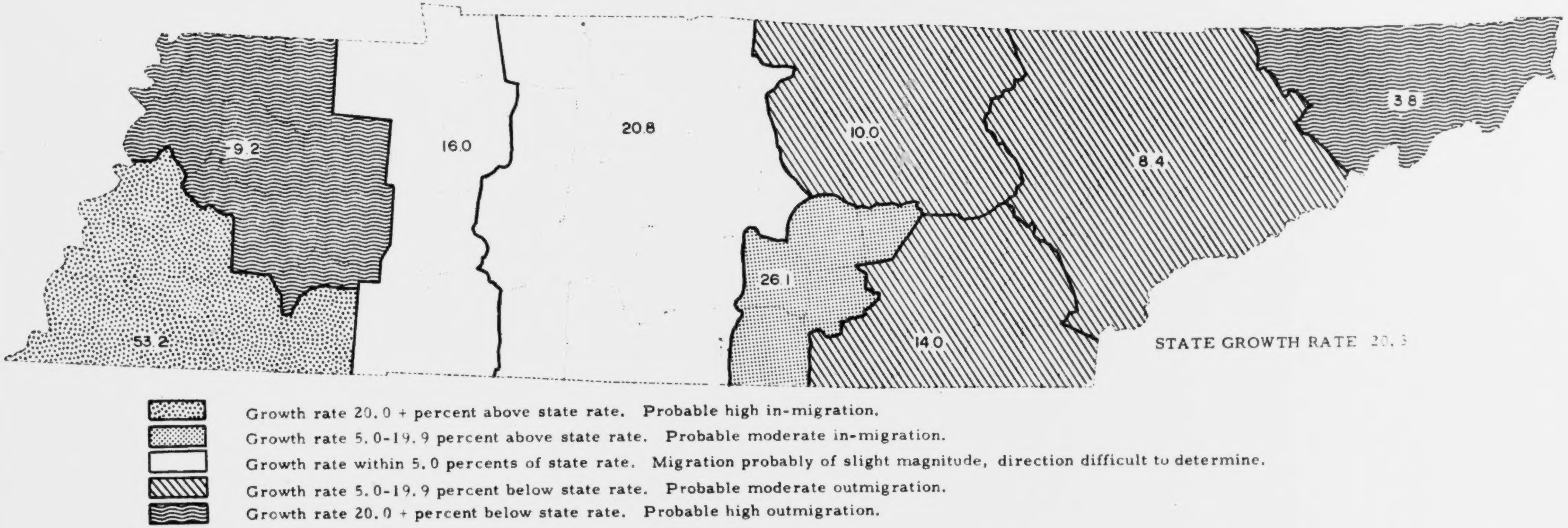
The industrial composition of employment in the region showed that employment in the extractive sector was higher than that for the State in 1960, and the relative importance of this sector is projected to continue through 1980. The productive sector (construction and manufacturing) was also quite important in the region. The services and trade sectors were relatively less important in the region than in the State. In 1960, 13.9 percent of total employment in the region was in the extractive sector and 46.5 percent was in the productive sector. The State figures for 1960 were 11.8 percent extractive and 40.7 percent productive. In 1980, 5.0 percent of the region's employment is predicted to be in the extractive sector compared to 2.8 percent for the State.

Summary

The region shows a low rate of population and employment growth. The labor force is more heavily male than the labor forces of most other regions. Potentially serious manpower problems will arise after 1980, as the regional population will contain a relative low percentage of children. A relatively large percentage in the 20-64 year age group gives the region a fair population mix in 1960, which is projected to become somewhat less favorable by 1980. A relatively low segment of the population was in retirement group in 1960, which is projected to become relatively large by 1980.

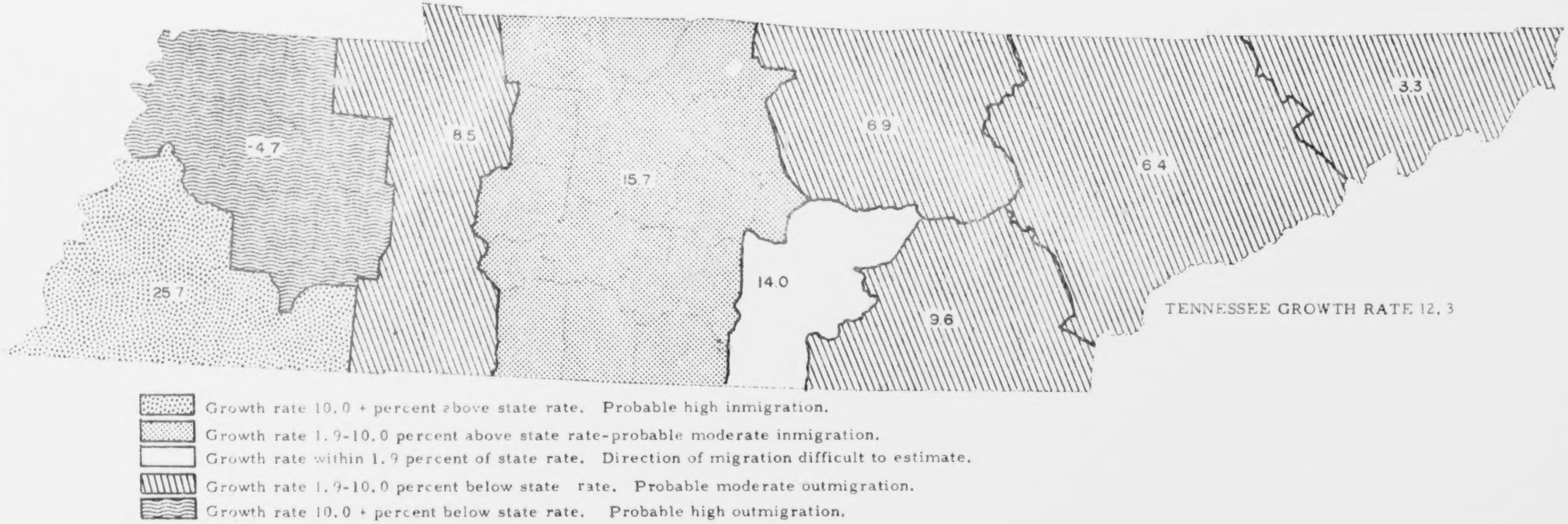
The economy was definitely in the secondary stage of development in 1960, and is projected to remain in this stage

MAP 2
COMPARATIVE POPULATION GROWTH RATES AND PROBABLE MIGRATION IN TENNESSEE PLANNING REGIONS, 1960-1980

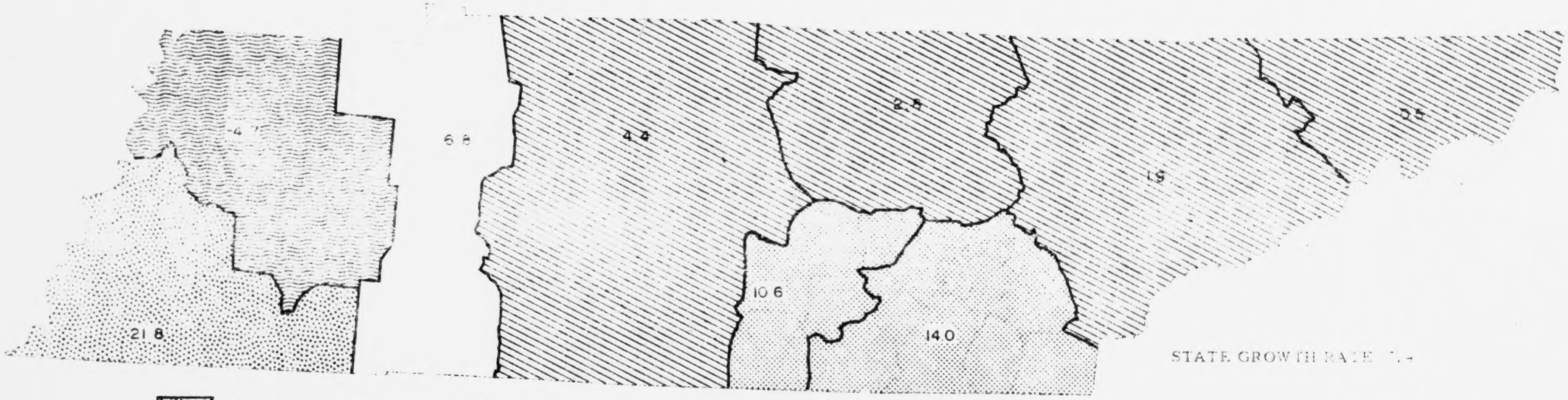

53.2
9.2
16.0
20.8
26.1
10.0
14.0
8.4
3.8
STATE GROWTH RATE 20.3
Growth rate 20.0 + percent above state rate. Probable high in-migration.
Growth rate 5.0-19.9 percent above state rate. Probable moderate in-migration.
Growth rate within 5.0 percents of state rate. Migration probably of slight magnitude, direction difficult to determine.
Growth rate 5.0-19.9 percent below state rate. Probable moderate outmigration.
Growth rate 20.0 + percent below state rate. Probable high outmigration.

MAP 3

COMPARATIVE GROWTH RATES OF POPULATION IN TENNESSEE REGIONS COMPARED TO THE STATE; AND PROBABLE MIGRATION, 1960-1970


-4.7
25.7
8.5
15.7
14.0
6.9
9.6
6.4
3.3
TENNESSEE GROWTH RATE 12.3
Growth rate 10.0 + percent above state rate. Probable high inmigration.
Growth rate 1.9-10.0 percent above state rate-probable moderate inmigration.
Growth rate within 1.9 percent of state rate. Direction of migration difficult to estimate.
Growth rate 1.9-10.0 percent below state rate. Probable moderate outmigration.
Growth rate 10.0 + percent below state rate. Probable high outmigration.

MAP 4
COMPARATIVE POPULATION GROWTH RATES IN TENNESSEE PLANNING REGIONS WITH PROBABLE MIGRATION, 1970-1980



- ▒ Growth rate 10.0 + percent above state rate. Probable high in-migration.
- ░ Growth rate 2.0-9.9 percent above state rate. Probable moderate in-migration.
- ☐ Growth rate within 2.0 percent of state rate. Probable migration of slight magnitude, direction difficult to determine.
- ▨ Growth rate 2.0-9.9 percent below state rate. Probable moderate outmigration.
- ≋ Growth rate 10.0 + percent below state rate. Probable high outmigration.

through 1980. Employment in the primary and productive sectors was relatively large, and employment in the trade and service sectors was relatively small throughout the 1960-1980 period.

Knoxville Region

Population

The region is projected to grow more slowly than the general State population. From the 1960 population of 654,236, the population should grow to 696,240 in 1970 and to 709,404 in 1980. The region should be third in population through 1980. This represents a growth rate of 8.4 percent for the 1960-1980 period, compared to 20.6 percent for the State. Projected regional growth rates are 6.4 percent and 1.9 percent for the 1960-1970 and 1970-1980 periods, respectively. These compare with State growth rates of 12.3 and 7.4 percent for these respective periods. The region should rank seventh among regions in growth rate through 1980.

The population mix in the region is predicted to become less favorable during the 1960-1980 period. In 1960, the mix of the region showed higher percentages of the regional population in the children and active groups with a smaller percentage in the retirement group.

AGE	1960	1970	1980
0-19	40.4	38.5	37.5
20-64	51.7	51.4	50.2
65-+	7.8	10.1	12.3

TABLE 12

POPULATION OF TENNESSEE PLANNING REGIONS BY MAJOR AGE-SEX GROUPS, 1960

	Upper East Tennessee		Knoxville		Chattanooga	
AGE	Male	Female	Male	Female	Male	Female
0-19	65,771	64,011	133,845	130,719	76,241	75,107
20-64	82,554	88,763	162,291	176,215	92,456	103,657
65-+	12,395	13,290	23,158	28,008	13,449	16,926
Total	160,720	166,064	319,294	334,942	182,146	195,690

	Lower Cumberland		Upper Cumberland		Nashville	
AGE	Male	Female	Male	Female	Male	Female
0-19	19,635	18,666	30,525	29,151	164,698	160,161
20-64	22,429	23,551	35,477	37,111	215,713	227,927
65-+	3,929	4,206	7,557	8,059	33,231	41,812
Total	45,993	46,423	73,559	74,321	413,642	429,900

	Kentucky Lake		Jackson		Memphis	
AGE	Male	Female	Male	Female	Male	Female
0-19	19,284	18,534	49,606	48,117	162,626	158,333
20-64	24,296	25,981	61,721	68,493	181,621	203,091
65-+	5,862	6,038	14,468	16,996	25,852	33,476
Total	49,442	50,553	125,795	133,606	370,099	394,900

The population in 1970 is expected to have a smaller percentage of children, a larger percentage of the active group, and an almost equal percentage of elderly people compared to the State. The region is expected to continue to have its larger share of the prime adult group in 1980, but it will have a significantly smaller percentage of children and a somewhat larger percentage of retirement age. The retirement group is projected to have an especially high growth rate in the Knoxville Region.

Labor Force

The labor force is expected to grow more slowly in the region than in the State. The projected growth rate of the total labor force is 23.9 percent for the 1960-1980 period. The female labor force follows the projected State and national trend, as it should grow by 73.6 percent during this period compared to an expected growth of 1.6 percent for the male labor force.

The labor force is projected to continue to have a slightly higher percentage of males than the overall State labor force. The labor force was 69.0 percent male in 1960 and is projected to be 56.7 percent male in 1980. This may reflect a slightly reluctant attitude of the people of the region to see females in the labor force. This compares with a State labor force 67.5 percent male in 1960 and projected 55.6 percent male in 1980.

The labor force in the Knoxville Region is projected to be somewhat older than the State labor force in 1980. The percentage of the regional labor force in the younger age brackets (under 45 years) is lower than in the State labor force, while the region has a relatively higher percentage of labor force 45 years and older. This trend is partially due to demographic changes in the population. The most important demographic change is the outmigration of young people from the region.

Employment

The Knoxville Region is projected to have slower employment growth than that of the State. The projected employment growth rate for the region during the 1960-1980 period is 31.1 percent compared to 41.4 percent for the State. The employment is expected to grow faster during the 1960's (16.4 percent) than during the 1970's (12.6 percent). Both these rates are slower than the projected State rates by about five percentage points.

The industrial distribution of employment in the region emphasizes the productive sector. This sector showed 45.3 percent of total regional employment in 1960 compared to 40.7

percent for the State. Employment in the other three sectors was relatively low in 1960. By 1970, the trade sector is expected to represent 17.9 percent of total employment in the region, compared to 17.3 percent for the State. The productive sector should continue to be important, with 46.3 percent of the region employment compared to 42.9 percent for the State. The extractive and service sectors should continue to be less important in the region. These sectors represent 4.6 and 31.1 percent of projected regional employment respectively, compared to 5.0 and 34.9 percent for the State. In that year, extractive employment should become relatively important even though it is small in number, with 3.1 percent of projected regional employment compared to 2.8 percent of State employment. The productive and trade sectors are expected to be relatively important, with 47.5 and 16.0 percent of regional employment, respectively. The projected State shares for these respective sectors are 44.4 and 14.8 percent. The service sector should continue to be relatively small.

These changes show the expected continuing importance of the productive sector to the region. The extractive sector is limited by the unfavorable terrain which allowed mainly subsistence agriculture. Mining, which was the economic base of some counties of the region in the past, is rapidly declining as an employment source. The region is traversed by transportation arteries in all four directions. As a result, manufacturing became important to the region as it could provide more important returns to the people than could agriculture. Much manufacturing was in the relatively low-wage categories. The low income prevented the rapid development of a services sector. The trade sector developed in importance, since the Knoxville Region provides many of the wholesale trade functions for the Upper East Tennessee Region as well as for itself. The Knoxville Region has moved out of the subsistence primary-based economy to a manufacturing economy. However, it has not developed the services base and infrastructure characteristic of a fully developed economy.

Summary

The Knoxville Region is projected to grow more slowly than the State in population. The projected 1960-1980 population growth rate is 8.4 percent compared to 20.6 percent for the State. The region ranks seventh among the nine regions in population growth rate. The relatively high outmigration projected for the region will cause an unfavorable turn in the population mix. While the region is projected to have a relatively higher share of the State population in the active age group than the State through 1980, the shares of children should

TABLE 13

POPULATION OF TENNESSEE PLANNING REGIONS BY MAJOR AGE-SEX GROUPS, 1970

	Upper East Tennessee		Knoxville		Chattanooga	
AGE	Male	Female	Male	Female	Male	Female
0-19	63,773	62,428	135,628	132,174	82,473	82,398
20-64	84,805	92,905	170,017	187,975	98,349	110,413
65-+	15,130	18,527	30,746	39,700	17,147	23,184
Total	163,708	173,860	336,391	359,849	197,969	215,995

	Lower Cumberland		Upper Cumberland		Nashville	
AGE	Male	Female	Male	Female	Male	Female
0-19	21,297	20,787	29,358	27,996	195,377	191,695
20-64	25,888	26,445	38,807	40,342	238,155	254,345
65-+	4,953	6,019	9,705	11,897	40,702	55,677
Total	52,138	53,251	77,870	80,235	474,234	501,717

	Kentucky Lake		Jackson		Memphis	
AGE	Male	Female	Male	Female	Male	Female
0-19	19,035	18,644	44,553	43,281	217,624	211,345
20-64	26,200	27,568	56,369	63,383	213,585	240,317
65-+	7,843	9,236	17,239	22,353	32,599	46,510
Total	53,078	55,448	118,161	129,017	463,808	498,172

drop below the State average while the share of old people is projected to rise above the State average.

The labor force is also projected to grow older than that for the State by 1980. The region's shares in all labor force age groups under 45 years of age is expected to be lower than the State average, while the region is predicted to have relatively high shares of persons over 45 years of age. This indicates that the Knoxville Region will have an aging labor force that will become less attractive to industry, and also indicates a potential manpower replacement problem in the years after 1980.

Employment is expected to grow more slowly in the region than in the State. The productive sector was relatively important in the region in 1960 and is projected to continue being important until 1980. The trade sector will increase in importance, and become relatively important in the region by 1970 and 1980. The service sector is projected to remain relatively small through 1980. The extractive sector is projected to become quite small in absolute numbers, but should remain relatively important in the region by 1980.

The Chattanooga Region

Population

The population of the Chattanooga Region is also projected to grow more slowly than the State population. It is projected to grow considerably faster than the other East Tennessee regions. The 1960 population of the region was 377,836. The population is predicted to rise to 413,964 in 1970 and to 430,798 in 1980. The region should be fourth in population through 1980. The projected growth rates for the region are 9.7 and 4.1 percent for the 1960-1970 and 1970-1980 periods, respectively. The projected State rates are 12.3 and 7.4 percent respectively for these two periods. The regional population is predicted to grow by 14.0 percent during the 1960-1980 period while the State population is projected to increase by 20.6 percent. The region ranks sixth in projected population growth rate.

The population mix of the region was more favorable than that of the State in 1960 and it is predicted to remain so through 1980. The share of the population 20-64 years of age should remain relatively high in the region through 1980. Youth represented a higher percentage of the region than the State population in 1960 and should be relatively important in 1980. This 0-19 age group is predicted to represent almost the same

TABLE 14

POPULATION OF TENNESSEE PLANNING REGIONS BY MAJOR AGE-SEX GROUPS, 1980

AGE	Upper East Tennessee		Knoxville		Chattanooga	
	Male	Female	Male	Female	Male	Female
0-19	62,913	61,798	135,401	130,815	86,152	87,525
20-64	82,699	92,764	168,728	187,414	99,250	114,349
65-+	17,140	22,154	37,069	49,977	18,504	25,018
Total	162,752	176,716	341,198	368,206	203,906	226,892

AGE	Lower Cumberland		Upper Cumberland		Nashville	
	Male	Female	Male	Female	Male	Female
0-19	23,246	22,746	29,709	28,715	201,946	194,682
20-64	28,209	28,677	38,346	39,395	249,167	265,482
65-+	5,978	7,708	11,685	14,750	45,689	62,124
Total	57,433	59,131	79,740	82,860	496,802	522,288

AGE	Kentucky Lake		Jackson		Memphis	
	Male	Female	Male	Female	Male	Female
0-19	20,322	19,955	40,683	39,705	264,909	259,207
20-64	26,583	27,771	50,689	57,796	263,454	293,463
65-+	9,361	11,956	19,551	27,062	36,437	54,572
Tota	56,266	59,682	110,923	124,563	564,800	607,242

share of the regional and State populations in 1970. The salient feature of the projected population mix of the region is that the retirement group was relatively unimportant in 1960 and should remain so in both projection years.

AGE	1960	1970	1980
0-19	40.1	39.8	40.3
20-64	51.9	50.4	49.6
65-+	8.0	9.7	10.1

The 0-19 age group is projected to increase its share of the population during the 1960-1980 period, the share of the 20-64 age group should decline slightly while the 65- and -over group is predicted to increase its share. The two older age groups follow projected State population trends. All age groups are predicted to increase in absolute size.

Labor Force

The total labor force of the region is projected to increase by 26.5 percent during the 1960-1980 period. The female labor force should increase at a much faster rate than the male labor force, as is true in all regions. The projected female labor force growth rate is 70.6 percent; the male labor force growth rate should be 3.9 percent. Females represented a slightly higher percentage of the labor force in the region than in the State, and this condition is expected to prevail through 1980.

The labor force in the region was 66.1 percent male in 1960, compared to 67.5 percent male for the State. In 1980, the regional labor force should be 54.3 percent male, compared to 55.6 percent male for the State. The Chattanooga Region labor force had the lowest percentage of males of all the regions in the State in 1960, and it is projected to retain this lowest percentage in 1980. However, three other regions are projected to have lower percentages of males in 1970.

The average age of the labor force is projected to be somewhere near that of the State labor force in 1970 and 1980. There were higher percentagesin the 25-34 and the 35-44 age groups in 1960. There was a smaller percentage of males and a greater percentage of females in the 45-64 age group in the regional labor force. The percentage in the 18-24 age group was relatively small. The projected 1970 labor force has relatively more males and fewer females in most age groups.

In 1960, the region had a relatively large percentage of its labor force in the prime age groups, and relatively low percentages in the youngest and oldest age groups. This favorable condition is projected to still hold true in 1970 and 1980. This, in part, stems from the population distribution. However, the age distribution of the labor force of the Chattanooga Region is favorable, perhaps more favorable than in any other region.

TABLE 15

ACTUAL AND PROJECTED PERCENTAGE CHANGES IN POPULATION FOR TENNESSEE PLANNING REGIONS, 1950-1980

Region	1950-1960	1960-1970	1970-1980	1960-1980	1950-1980
Upper East Tennessee	6.7	3.3	0.5	3.8	10.8
Knoxville	5.4	6.4	1.9	8.4	14.3
Chattanooga	10.0	9.7	4.1	14.0	25.4
Lower Cumberland	5.9	14.0	10.6	26.1	33.5
Upper Cumberland	-9.2	6.9	2.8	10.0	- 0.2
Nashville	12.9	15.7	4.4	20.8	36.4
Kentucky Lake	-7.0	8.5	6.8	16.0	7.8
Jackson	-8.0	- 4.7	-4.7	- 9.2	-16.5
Memphis	20.5	25.7	21.8	53.2	84.7
State	8.4	12.3	7.4	20.6	30.7

Employment

Total employment in the region is expected to grow more slowly than that of the State. Employment in the region is expected to increase by 28.4 percent while total State employment is expected to increase by 41.4 percent. The employment growth rate is expected to be fairly even throughout the 1960-1980 period, but it should grow slightly faster during the 1960's.

The slow growth in total employment seems to be primarily the result of slow growth in the productive sector. The productive sector was very important in the region in 1960. In that year, this sector represented a higher percentage of the Chattanooga Region's employment than it did of the employment in any other region. By 1980, the percentage of the total regional employment in the productive sector is projected to decline to 43.5 percent from 47.5 percent in 1960. The extractive sector was less important to this region than to any other in 1960, and this condition should continue to 1980. The projected employment in the extractive sector in that year is 1,712 or only one percent of total regional employment.

The trade sector should represent a smaller percentage of employment in the region than in the State throughout the projection period. The services sector should be important in the Chattanooga Region employment picture. In 1960, 29.1 percent of the total employment of both the region and the State was in services. This sector is projected to grow so rapidly in the region that by 1980, 41.0 percent of total regional employment and 38.1 percent of total State employment should be in services. The services sector represents 82.9 percent of the projected increase in total employment for the region during the projection period.

Summary

The Chattanooga Region population is projected to grow more slowly during the 1960-1980 period, although it should grow faster than those of the Upper East Tennessee and Knoxville Regions. The population mix is favorable, with a relative high percentage of the population predicted to be in the 20-64 age group through 1980. The percentage in the retirement age group is projected to be relatively low during the projection period.

The regional labor force is expected to grow more slowly than the State labor force. As in all other regions, the female labor force is forecast to increase more rapidly than the male labor force. This reflects increasing female labor force participation rates. The age composition of the labor force is quite favorable with relatively high percentages of the labor force projected to be in the prime age groups through 1980.

TABLE 16

LABOR FORCE BY AGE AND SEX FOR TENNESSEE REGIONS, 1960

	Upper East Tennessee		Knoxville		Chattanooga	
AGE	Male	Female	Male	Female	Male	Female
14-17	2,384	676	4,713	1,931	2,710	1,090
18-24	10,521	6,457	21,331	13,304	12,308	7,607
25-34	19,158	7,560	36,150	15,082	22,050	10,179
35-44	20,226	8,049	38,469	17,091	21,691	11,510
45-64	25,603	9,481	52,116	21,647	30,514	15,683
65 +	3,441	983	6,375	2,179	3,831	1,591
Total	81,333	33,206	159,154	71,234	93,104	47,660
Regional Total		114,539		230,388		140,764

	Lower Cumberland		Upper Cumberland		Nashville	
AGE	Male	Female	Male	Female	Male	Female
14-17	705	346	1,363	601	6,606	2,519
18-24	3,138	1,635	4,970	3,393	34,771	18,495
25-34	5,262	2,173	6,828	3,692	49,470	22,325
35-44	5,275	2,391	7,719	3,776	49,807	26,037
45-64	7,270	3,003	11,678	4,339	68,725	35,484
65 +	1,032	342	1,943	411	10,704	4,094
Total	22,682	9,890	34,501	16,212	220,083	108,954
Regional Total		32,572		50,713		329,037

	Kentucky Lake		Jackson		Memphis	
AGE	Male	Female	Male	Female	Male	Female
14-17	797	248	2,145	577	5,708	1,988
18-24	2,920	1,731	7,490	4,224	28,984	15,206
25-34	4,566	2,473	11,691	6,556	43,316	21,411
35-44	5,560	2,669	13,738	7,872	43,809	23,680
45-64	9,068	3,579	24,314	11,654	58,273	31,322
65 +	1,432	330	4,283	1,467	8,273	3,416
Total	24,343	11,030	63,661	32,350	188,363	97,023
Regional Total		35,373		96,011		285,386

Relatively low percentages in the 19-24 age group may indicate manpower replacement problems in the distant future.

Employment in the region is projected to grow rather slowly. The slow growth in the productive sector, which was important in the region in 1960, is the primary reason for this slow growth. Very rapid growth in the service sector should partially offset the slow growth of the productive sector. By 1980, the productive sector is predicted to employ about 5,000 more persons in the region than the services sector. In 1960, the productive sector employed about 25,000 more people.

The Lower Cumberland Region

Population

The population of the region is projected to grow faster than that of the State. The population should grow from 92,416 in 1960 to a projected 116,564 in 1980. The region should be the smallest in the State through 1970, and next to smallest in 1980. The projected growth rate for the 1960-1980 period is 26.1 percent for the region and 20.6 percent for the State. The region should grow faster than the State in both halves of the projection period. The projected regional growth rates for the 1960-1970 and 1970-1980 periods are 14.0 and 10.6 percent, respectively. The projected State rates for the same periods are 12.3 and 7.4 percent, respectively. This region ranks second among the regions in 1960-1980 projected growth rates.

The age mix of the population of the Lower Cumberland Region is projected to become slightly more favorable during the 1960's and less favorable during the 1970's. In 1960, the population had a larger percentage under 20 years, a smaller percentage 20-64 years, and an almost equal percentage in the over-65 group than the State population. By 1970, the region is projected to have a similar distribution of population with Tennessee. The youth group has the same percentage, the active group is smaller by a very slight margin, while the retirement group is slightly larger. By 1980, the Lower Cumberland Region is projected to have an unfavorable age mix in the population, with relatively small youth and active groups, and a relatively large retirement group.

AGE	1960	1970	1980
0-19	41.4	39.9	39.4
20-64	49.8	49.7	48.8
65-+	8.8	10.4	11.7

The percentage of the total population represented by the 20-64 age group declined more slowly in the region than in the State.

Labor Force

The labor force of the region is projected to grow by 44.4 percent from 1960 to 1980. The female labor force is forecast to increase by 100.6 percent; the male labor force should

TABLE 17

LABOR FORCE BY AGE AND SEX FOR TENNESSEE REGIONS, 1970

	Upper East Tennessee		Knoxville		Chattanooga	
AGE	Male	Female	Male	Female	Male	Female
14-17	1,852	766	3,877	2,135	2,286	1,318
18-24	11,887	9,110	25,737	19,608	16,327	11,951
25-34	18,963	8,980	39,069	19,338	23,166	12,564
35-44	18,009	9,338	33,172	19,445	20,455	13,205
45-64	28,591	15,945	57,070	34,044	32,408	22,391
65 +	2,883	1,832	6,135	4,132	3,548	2,795
Total	82,185	45,971	165,060	98,702	98,190	64,224
Regional Total		128,156		263,762		162,414

	Lower Cumberland		Upper Cumberland		Nashville	
AGE	Male	Female	Male	Female	Male	Female
14-17	590	400	968	544	6,782	3,586
18-24	4,150	2,799	6,050	4,909	42,918	30,926
25-34	6,148	2,750	8,815	5,166	53,470	29,542
35-44	5,344	3,093	6,352	3,847	46,018	30,170
45-64	8,386	4,834	11,683	6,556	76,913	52,276
65 +	924	639	1,737	882	9,314	6,921
Total	25,542	14,515	35,605	21,904	235,415	153,421
Regional Total		40,057		57,509		388,836

	Kentucky Lake		Jackson		Memphis	
AGE	Male	Female	Male	Female	Male	Female
14-17	566	252	1,532	556	7,449	3,191
18-24	4,961	3,295	8,998	6,041	47,837	33,001
25-34	5,512	3,046	11,361	6,925	52,483	28,927
35-44	4,257	2,803	9,553	7,189	41,401	28,620
45-64	9,155	5,188	22,207	14,657	64,875	46,562
65 +	1,330	717	3,659	2,576	7,430	5,993
Total	25,781	15,301	57,310	37,944	221,475	146,294
Regional Total		41,082		95,254		367,769

grow by almost 20.0 percent. The labor force in the region was more strongly male in 1960 than was the Tennessee labor force (69.6 percent to 67.5 percent) and the labor force should continue to be more strongly male through 1980. In 1980, the regional labor force is expected to be 57.8 percent male compared with 55.6 percent male for the State. In 1980, the Lower Cumberland labor force is predicted to be more strongly male than that of any other region.

The age mix of the labor force is predicted to become more favorable during the 1960's and somewhat less favorable in the 1970's. The 1960 age composition of the regional labor force was quite similar to that of the State. There was a slightly higher percentage in the 25-44 age group and a slightly lower percentage in the 45-64 age group. In 1970, the region is forecast to have relatively high percentages in the 25-44 age group. There is a slightly lower percentage predicted for the 45-64 age group. By 1980, relatively low percentages are predicted for the 18-34 age group and higher percentages for the 35-64 age group. This represents an aging of the labor force, but it does indicate that the labor force of the region should be rather vigorous. The larger percentages, moreover, are composed of males. The females in many age groups are projected to represent relatively small percentages of the regional labor force.

Employment

Total employment in the region is projected to increase from 30,370 in 1960 to 45,803 in 1970. The increase of 51.3 percent is higher than that for the State. Total employment in the region is projected to increase by 27.8 percent from 1960 to 1970 and by 18.4 percent from 1970 to 1980.

The distribution of total employment shows a very rapid growth in the services sector. In 1960, the productive sector was the largest employer among the sectors, with 11,684 jobs. Services employment was 8,744. By 1980, services employment is projected to raise to 28,769, which is 62.8 percent of the total employment in the region. The productive sector is predicted to employ 12,468 in 1980. This increase in the services sector is unrealistically large. The Arnold Engineering Laboratory, the largest employer in the region, with a large staff of highly-paid research personnel; has all its employment classified in the services sector. The laboratory was established during the 1950-1960 base period and created an increase in services employment which is unlikely to be repeated again. Therefore, the employment and population increases in the region tend to be unrealistically great.

The extractive sector, which represented 17.9 percent of the total employment in the region in 1960, is projected to

TABLE 18

LABOR FORCE BY AGE AND SEX FOR TENNESSEE REGIONS, 1980

	Upper East Tennessee		Knoxville		Chattanooga	
AGE	Male	Female	Male	Female	Male	Female
14-17	1,368	761	2,923	2,040	1,713	1,335
18-24	10,214	10,625	24,664	21,760	14,487	14,930
25-34	21,136	12,735	45,387	26,905	28,144	18,777
35-44	17,219	11,052	33,294	23,592	20,511	15,472
45-64	26,942	21,881	50,405	42,823	29,246	27,011
65 +	2,412	2,925	5,067	6,552	2,619	3,766
Total	79,291	59,979	161,740	123,672	96,720	81,291
Regional Total		139,270		285,412		178,011

	Lower Cumberland		Upper Cumberland		Nashville	
AGE	Male	Female	Male	Female	Male	Female
14-17	493	419	744	592	5,249	3,478
18-24	4,180	3,485	5,329	5,157	42,246	32,387
25-34	7,649	4,325	10,522	7,104	69,778	46,365
35-44	5,703	3,723	7,905	5,587	47,584	38,795
45-64	8,398	6,801	9,919	8,285	72.971	67,269
65 +	790	1,083	1,439	1,708	7,398	10,102
Total	27,213	19,836	35,858	28,433	245,226	198,396
Regional Total		47,049		64,291		443,622

	Kentucky Lake		Jackson		Memphis	
AGE	Male	Female	Male	Female	Male	Female
14-17	445	264	1,008	465	6,831	3,562
18-24	4,238	3,425	7,909	6,531	54,083	45,738
25-34	7,861	5,136	13,154	8,998	87,423	57,481
35-44	4,955	4,480	9,183	7,384	48,005	38,430
45-64	7,282	6,209	16,459	15,567	63.902	61,761
65 +	1,114	1,349	2,885	3,417	5,776	8,825
Total	25,895	20,863	50,598	42,362	266,020	215,797
Regional Total		46,758		92,960		481,817

decline. By 1980, the extractive sector should be relatively small. This leaves services as the predominant sector of employment for the region.

Summary

This region is expected to grow more rapidly than the State in population and employment. The establishment of a large Federal research laboratory in the region during the 1950-1960 period pushed the region directly from an extractive and low-grade manufacturing economy into a services economy. Substantial economic benefits resulted. The services sector is projected to be the outstanding employer in the region by 1980, although this increase is unrealistically large. However, the region has acquired a substantial growth potential with a base strongly rooted in the Federal laboratory and in several manufacturing plants which have located in the area.

The age mix of the population and the labor force are quite favorable. The labor force of the region is projected to be more strongly male than the labor force of any other region in 1970 and 1980.

Upper Cumberland Region

Population

The population of the region declined by 9.2 percent during the 1950-1960 period. This trend should be reversed after 1960, with the population projected to increase from 147,880 in 1960 to 158,105 in 1970 and to 162,600 in 1980. The region should be seventh among regions in population. The projected growth rate is smaller than that for the State, with the population of the region predicted to increase by 10.0 percent from 1960 to 1980 compared with a projected 20.6 percent increase for the State. The region ranks sixth in projected growth rate among the regions for the 1960-1980 period and both halves of this period. The projected growth rate is 6.9 percent for 1960-1970 and 2.8 percent for the 1970-1980 period. Nonetheless, this trend is a favorable change from the 1950's, when the region lost population at a faster rate than any other.

The age mix of the population of the region is predicted to change unfavorably during the 1960-1980 period. The population in the 0-19 age group is projected to decline absolutely during the 1960's. While the youth group is projected to increase slightly during the 1970's, the 20-64 age group is forecast to decline by about 1,500 during that decade. These demographic changes result from the heavy outmigration of young people from the region prior to 1960. The large outmigration of families created the projected decline in the number of people 0-19 years of age during the 1960's. This decline in young people is partially responsible for the projected decline in the active age group during the 1970's. While the active age group is projected to increase during the 1960's, many of these people were over 50 years old in 1960, and will reach retirement age during the 1960-1980 period. The exit of the older people from the 20-64 age group into the 65-and-over age group is larger than the number of young people attaining their 20th birthdays during the 1970's. This causes the projected decline in the active age group during the 1970-1980 period. The retirement group is forecast to increase steadily throughout the projection period.

These changes are more clearly shown in the age distribution of the population. In 1960, the percentages of population in both the youth and the active age groups were lower than the State average, while the percentage of the retirement age group was higher. This demographic structure is typical of regions which have undergone high rates of outmigration. In 1970, the percentage in the active group is projected to be slightly higher than the State population, but the youth group should be relatively quite low and the retirement group relatively high. By 1980, the pattern of relatively low percentages in the youth and active groups and a high percentage in the retirement group is projected. Fully 16.5 percent of the population of the region is foreseen to be in the retirement group in 1980 compared to 11.1 percent of the State population.

AGE	1960	1970	1980
0-19	40.4	36.3	35.9
20-64	49.1	50.1	47.8
65-+	10.6	13.7	16.3

This age composition is highly unfavorable. It means that the region is likely to be very dependent upon the outside world for years to come. In view of the region's limited resource base and infrastructure, this is likely to happen in any case. But a large percentage of the population is dependent upon a small, economically active, portion of the population. The region has lost much of its most promising manpower in the past and it is predicted to encounter serious manpower replacement problems if it fails to offer more incentive to promising young persons to return.

Labor Force

The labor force is projected to increase by 26.8 percent during the 1960-1980 period. The male labor force is projected to decline during the period by 3.8 percent. The projected increase in the female labor force is therefore larger than the increase in the total labor force. The female labor force is predicted to grow by 75.4 percent during the period.

These changes in the sex composition of the labor force are the results of the agonizing shift in the regional economy during the 1950's. Male employment in subsistence agriculture, mining, and lumber manufacturing declined precipitously, and the increase in other employment sectors was unable to offset this decline in the primary sector. The employment decline led to high outmigration from the region. Moreover, most of the new employment opportunities that appeared in the region were in apparel plants and were for women. Many women who had not previously been in the labor force accepted employment in apparel plants, thereby joining the labor force. This, of course, led to greatly accelerated participation rates among females. The decline in male employment, on the other hand, led to outmigration of many males and also to the withdrawal of some males who remained in the region from the labor force because of the impossibility of securing employment. However, the labor force in the region is predicted to remain more strongly male than the total State labor force. The regional labor force was 68.0 percent male in 1960, compared to 67.5 for the State. In 1980, the projections show the regional labor force to be 58.7 percent male compared to 55.6 percent male for the State.

The age composition of the labor force of the region is slightly more favorable than its population. In 1960, the under-24 and 65-and-over age groups were relatively large while the 25-64 age groups were relatively small. The age composition of the regional population is projected to improve during the 1960-1980 period. By 1980, the percentage of the labor force in the 25-44 age group is predicted to be relatively high, while the percentages in the 18-24 and 45-64 age groups are projected to be relatively low. The relatively large numbers in the prime 25-44 age group in the region occur in both sexes. The presence of this labor force is an attraction to industry and is of benefit to the region.

Employment

The employment in the region is expected to grow more slowly than in the State. The projected growth rate for employment in the region is 34.4 percent from 1960 to 1980. Employment is projected to increase at a faster rate in the 1960's than in the 1970's.

The projected sectoral distribution of employment reflects the shift out of the primary sector into the productive sector that occurred during the 1950's. While the productive sector had already become the largest sector by 1960, its projected absolute growth for the 1960-1980 period is greater than the absolute growth in total employment. The productive sector employment in the region is predicted to increase by 137.3 percent during the period while employment in the extractive sector is projected to decline by more than 85 percent during the same period.

TABLE 19

DISTRIBUTION OF TOTAL EMPLOYED BY MAJOR SECTORS FOR TENNESSEE PLANNING REGIONS, 1960-1970-1980

	REGIONS									
Sector	Upper East	Knoxville	Chattanooga	Lower Cumberland	Upper Cumberland	Nashville	Kentucky Lake	Jackson	Memphis	State Total
1960										
Extractive	14,675	21,731	7,564	5,425	13,355	31,463	6,389	21,626	21,622	143,850
Productive	49,080	98,096	63,334	11,684	18,634	120,134	14,250	30,178	91,507	496,897
Trade	17,361	39,693	23,257	4,517	6,558	56,253	5,050	15,858	57,124	225,671
Services	24,432	57,052	38,581	8,744	9,045	97,222	6,865	21,698	91,643	355,282
Total	105,548	216,572	132,736	30,370	47,592	305,072	32,554	89,360	261,896	1,221,700
1970										
Extractive	8,538	11,689	3,486	2,320	5,373	14,483	2,808	10,839	13,527	73,113
Productive	54,492	116,786	70,318	13,488	35,079	160,324	21,201	38,215	123,900	633,803
Trade	19,238	45,217	24,937	4,554	7,097	62,625	6,576	16,616	69,755	256,615
Services	38,473	78,418	53,463	18,333	10,166	129,721	8,916	25,777	152,448	515,715
Total	120,791	252,110	152,204	38,695	57,715	367,153	39,501	91,447	359,630	1,479.246
1980										
Extractive	6,682	8,840	1,712	1,064	1,991	6,593	2,332	6,662	12,178	48,054
Productive	60,509	134,906	74,169	12,468	44,213	212,372	27,204	45,679	155,085	766,605
Trade	17,451	45,351	24,737	3,502	7,077	59,159	6,985	16,088	74,328	255,178
Services	49,684	94,871	69,838	28,769	10,704	146,664	9,804	27,561	219,337	657,232
Total	134,326	283,968	170,456	45,803	63,985	424,788	46,325	95,990	461,428	1,727,069

In 1960, the extractive sector was the only relatively large sector in the region. It still employed 28.1 percent of the region's workers compared to 11.8 percent for the State. The trade and service sectors were relatively very small. The productive sector share of total employment is projected to grow from 39.2 percent in 1960 to 60.8 percent in 1970. The extractive sector is still projected to be relatively large with 9.3 percent of regional employment compared to 5.0 percent for the State. By 1980, the productive sector is expected to represent 69.1 percent of the total regional employment compared to 44.4 percent for the State. The share of the extractive sector is 3.1 percent. The trade and service sectors continue to be rather small, with the services sector to be particularly underdeveloped with 16.8 percent compared to 38.1 percent for the State. The Upper Cumberland Region is projected to have a larger share of productive employment and a smaller share of services employment than any other region. These projections show the region attaining the second stage of economic development in the Colin Clark scheme, but failing to enter the third stage due to low incomes, lack of the right kind of manpower, and inferior transportation facilities through most of the region.

During the 1950's, male employment declined drastically while female employment rose very rapidly. The projections of employment and labor force for 1970 and 1980 show that projected female employment would greatly exceed the projected female labor force. The predicted employment growth for the region, especially in the productive sector, may be limited by this factor as the female labor force is exhausted. The employment of males is the most important manpower need in the region today.

Summary

The region is predicted to grow more slowly in population than the rest of the State. The population mix is predicted to become unfavorable because of the high outmigration from the region during the previous decade. By 1980, the retirement group should be relatively large while the youth and active groups should be relatively small. Employment should grow more slowly than in the State, with the productive sector becoming the predominant employer in the region. A weak infrastructure, with the smallest percentage of services employment in any region, points to the Upper Cumberland Region as remaining on the periphery of the economy.

The Nashville Region

Population

The population of the Nashville Region is projected to increase slightly faster than the total State population during the 1960-1980 period. From a 1960 population of 843,542, the regional population is predicted to rise to 975,951 in 1970 and to 1,019,090 in 1980. The region should be first in population in 1970 and second in 1980. The projected population growth rate is 20.8 percent for the 1960-1980 period, which compares with the projected State rate of 20.6 percent. The region is expected to grow more rapidly during the 1960's than the 1970's. The projected growth rate for 1960-1970 is 15.7 percent; for 1970-1980 it is 4.4 percent. The State population growth rates predicted for these two periods are 12.3 and 7.4 percent, respectively. The region should rank second in growth rate among regions through 1980.

The region is predicted to have a favorable age composition for its population. All three age groups are predicted to increase in number from 1960 to 1980. The retirement age group, as in all regions, is projected to have the highest growth rate among the major age groups. The region should have a higher percentage of its population in the 20-64 age group than the general State population, while the 0-19 age group and the retirement age group are predicted to maintain relatively small shares of the regional population.

AGE	1960	1970	1980
0-19	38.5	39.7	38.9
20-64	52.6	50.5	50.5
65-+	8.9	9.9	10.6

The share represented by the youth group is projected to rise and then decline; the share of the prime age groups should decline to 1970 and then hold steady to 1980; the share of the retirement groups should rise steadily.

Labor Force

The labor force of the Nashville Region is projected to increase by 34.8 percent from 1960 to 1980. The female labor force should grow by 82.1 percent; the male labor force should increase by 11.4 percent. The labor force in the region had slightly more than its share of females in 1960 and it is projected to continue having relatively more females through 1980. In 1960, the labor force of the region was 66.9 percent male compared to 67.5 percent male for the State. In 1980, the labor force is expected to be 55.3 percent male compared to 55.6 percent male for the State. This characteristic results from the relative abundance of female-employing service industries in the region.

The age composition of the Nashville Region labor force is mildly favorable. In 1960, the region had relatively more labor force members in the 18-24 and the 45-64 age groups, and relatively few in the 25-44 age group. The proportion in the retirement group was slightly higher in the region. The regional and State percentage in the 0-19 age group was the same. By 1970 the labor force has a slightly higher share of its labor force in the 18-24, 35-44 and over 65 age groups, with slightly lower percentages in the 45-64 age group. The regional labor force should be similar to the State labor force in its age composition in 1970. The regional labor force is predicted to mature somewhat by 1980, when the percentages in the 18-35 age group should be slightly lower and the 35-64 age group slightly higher than in the State labor force. This shows that the region's labor force has a fairly vigorous population which will be an asset to the continued development of the region.

Employment

Total employment in the region is projected to increase by 39.2 percent from 1960-1980. This is slightly slower than the projected State rate. The negative shift for the 1960-1980 period is 6,979 jobs or 2.8 percent of 1960 employment.

The productive and service sectors are the largest sectoral employers in the region. These sectors were relatively important in the regional employment in 1960, and they are projected to continue until 1980. Employment in the productive sector is projected to show a larger increase, both relatively and absolutely, than the service sector. The projected growth rate for productive employment from 1970-1980 is 76.8 percent and for the service sector is 50.9 percent. Employment in the trade sector is predicted to decline slightly while extractive sector employment should decline sharply. In 1960, 43.7 percent of the employed persons were engaged in production while 31.9 percent were engaged in services. By 1980, fully 50 percent of total regional employment is projected to be in production while 34.5 percent is predicted to be in services.

This distribution shows the development of a well-balanced regional economy. The productive sector is extremely important and provides a solid base for the economy. Services are also important to the region, which supplies them to surrounding territories as well as to itself. The employment distribution should be favorable to continued development for the Nashville Region.

Summary

The population of the Nashville Region is projected to grow slightly faster than the State population for the 1960-1980 period. Much of this growth is expected to occur during the 1960's. The population is relatively vigorous, with more than its share in the 20-64 age group.

The labor force of the region is also favorable. It is expected to mature somewhat during the 1960-1980 period, but it should maintain a fair number of workers in the prime age group. In 1960, the regional labor force had relatively large shares of the 18-24 and 65-and-over age groups and relatively few in the 45-64 group. By 1980, the region should have a slightly higher share in the younger 18-35 age group. However, it should not have a serious manpower replacement problem.

The employment distribution is concentrated in the productive and services sectors, giving the region a strong economic base and good development potential. Both these sectors are projected to have substantial growth. Exactly half the total employment in the region is predicted to be in the productive sector by 1980, with 35 percent in services. Trade and extractive pursuits are relatively unimportant in the region.

Kentucky Lake Region

Population

The region lost population during the 1950's. The region is predicted to reverse the trend and gain population at a slower rate than the State during the 1960-1980 period. The projected population growth rate for the period is 16.0 percent, compared with 20.6 percent for the State. The population of the region should rise from 99,995 in 1960 to 108,526 in 1970 and to 115,948 in 1980. The region ranked eighth in population in 1960 and is projected to become the smallest region in terms of population by 1980. The projected growth rates of the region's population for 1960-1970 is 8.5 percent and for 1970-1980 is 6.8 percent. These compare with the projected State growth rates of 12.3 and 7.4 percent for the same two decades, respectively. The region ranks fourth among the regions in population growth rates projected to 1980.

All three major age groups in the population are expected to increase in the region throughout the projection period. The 0-19 and the 20-64 year age groups are expected to increase slowly, while the retirement age group is predicted to grow much more rapidly. These trends represent unfavorable demographic developments. The youth and prime age groups represented a larger share of the population of the region in 1960. These developments, as stated previously, are common in areas which have high rates of outmigration.

In 1960, the percentage of population in the youth age group was 37.8 percent compared to 39.9 percent for the State. The percentage for the prime age group was 51.4 percent, the same as that for the State. The retirement age group represented 11.9 percent of the regional population compared to 8.0 percent of the State population. By 1980, the retirement group percentage of the regional population is projected to soar to 18.4 percent compared to 11.1 percent for the State.

AGE	1960	1970	1980
0-19	36.7	34.7	34.7
20-64	50.3	49.5	46.9
65-+	11.9	15.7	18.4

Labor Force

The total labor force of the region is projected to increase by 32.2 percent from 1960 to 1980. The female labor force should increase by 89.1 percent and the male labor force is projected to increase by 6.4 percent. This is the result of a statewide trend toward increasing participation of females in the labor force possibly reinforced by economic necessity for women to enter the job market.

The labor force age composition of the Kentucky Lake Region is more favorable than might first be supposed. In 1960, it was distinctly unfavorable. Except for the unimportant 14-17 year group, all the age groups to 44 years of age were relatively small in the region. There was a relatively large percentage of the labor force over 45 years of age. This relatively old labor force impeded prospects for regional development.

The projected labor force for 1970 shows a relatively large labor force in the 18-24 age group as well as in the 45-and-over age groups. The 25-44 age group is still projected to represent a relatively small portion of the Kentucky Lake Region labor force. In 1980, the 25-34 year age group is projected to form 27.8 percent of the regional labor force compared to 27.0 percent of the State labor force. Fully 20.2 percent of the region's labor force should be 35-44 years old, compared to 19.2 percent for the State. The 45-64 year age group is projected to become relatively small in 1980.

This predicted change in the labor force is surprising considering the age mix of the population. This change would make the labor force more attractive to industry, and it is one of the most favorable indications that can be seen in the projections for the Kentucky Lake Region.

Employment

The projected employment distribution for the region is predicted to become somewhat more favorable during the 1960-1980 period. During the 1950's, the productive sector supplanted the extractive sector in importance. By 1960, the productive sector was the most important employer with 43.8 percent of regional employment. The services sector was relatively small (21.1 percent in the region, 29.9 percent in the State), while the extractive sector was relatively large, with 19.6 percent for the region compared to 11.8 percent for the State.

The 1970 projections show the rapid growth in the productive sector combined with slow growth of the trade and services sectors plus the typical rapid decline in the extractive sector. Production should account for 53.7 percent of total employment in the region in 1970.

The conditions prevalent in 1960 and the 1970 projections should continue to 1980. The productive sector is projected to account for 58.7 percent of total employment in the region, compared with 44.4 percent for the State. The extractive sector should employ 5.0 percent of those working in the region compared to 2.8 percent for the State. The trade and service sectors predicted to increase their shares of employment to 15.1 and 21.2 percent of regional employment respectively, but they should continue to be relatively unimportant.

The Kentucky Lake Region will show the transition from an extractive to an industrial economy. As in some of the other underdeveloped regions, the infrastructure and services are projected to be woefully lacking. As a result, most production enterprises that would locate in an area lacking infrastructure are highly sensitive to labor costs and do not require large amounts of sophisticated services. Such industries generally pay lower wages and require lower skills than industry in general. This lack of trade and services also indicates large leakages of the net income earned in the region to areas outside the region. This is also true of some other regions with similar industrial distributions of employment.

Summary

The Kentucky Lake Region is another region that is predicted to become heavily concentrated in the productive sector which is the first step in economic development. It should have some success, as it is projected to reverse its declining population trend and to increase slowly in population. The population mix is heavily weighted by older people.

The labor force is projected to improve in quality, with some of the prime age groups predicted to become relatively important in 1970 and 1980, after the region exhibited an aging labor force in 1960. This is one bright spot in the regional economic picture.

Over half the workers in the region are predicted to be in the productive sector by 1970 and also in 1980. The extractive sector will continue to be relatively important. The trade and services sectors are projected to be relatively small. The inability of the region to meet many of its service needs will restrict the further economic development of the region. This may be the most significant problem in the area.

Jackson Region

Population

The Jackson Region lost population during the 1950-1960 period, with a decline of 8.0 percent. The region is projected to continue to lose population at a steady rate during the 1960-1980 period. Nevertheless, the region should be sixth in population from 1960-1980. The 1960 population was 259,401; the projected population for 1970 and 1980 is 247,178 and 235,486. The projected declines for the 1960's and the 1970's are 4.7 percent for both decades, and the projected decline for the 1960-1980 period is 9.2 percent. The Jackson Region is the only region in the State that is predicted to lose population from 1960 to 1980. The region ranks ninth among the regions in projected population growth rate.

The age composition of the population of the region is expected to become very unfavorable. While the region should experience a net decline in total population, the population in the retirement age group is projected to actually increase by 48 percent from 1960 to 1980. The youth group and the active group are expected to decline by 17.7 and 16.7 percent respectively. Such developments are common in areas with declining populations, although the trend is more pronounced in the Jackson Region than in other regions.

The heavy outmigration of the 1950-1960 period is predicted to continue through 1980, draining away the members of the active group and their children. This leaves the retirement group, which is dependent upon a comparatively slender productive group, and cannot reproduce themselves. If the population trends projected for the 1960-1980 period were continued far enough into the future, the number of young people left in the region would be sufficient to maintain the population only at an extremely low level. While this is unlikely to actually take place, it reveals the critical manpower problems the region would face if the population trends of the 1950's were continued.

AGE	1960	1970	1980
0-19	37.7	35.6	34.1
20-64	50.2	48.4	46.1
65-+	12.1	16.0	19.8

The table shows the declines in the percentages of the population under 65 years of age and the increase in the percentage of the retirement age group. By 1980, the Jackson Region will have a higher projected population percentage over 65 than any other region in the State.

Labor Force

The labor force is projected to decline by 3.2 percent from 1960 to 1980, despite the 9.2 percent decline in population forecast for the same period. The slower decline in the labor force is the result of higher participation rates for females. The female labor force is predicted to increase by 30.9 percent while the male labor force should decline by 20.5 percent.

The increased female participation is partly created by economic necessity. Male employment in the extractive sector, which was quite important in the region, declined during the 1950's. Most of the employment opportunities in the productive sector that developed during that period were for women. Large numbers of unemployed males migrated from the region, causing the reduction in the male labor force.

The labor force, as might be expected, is quite old compared to the State labor force. In 1960, every group under 45 years of age was relatively small and each group over 45 years was relatively large. Fully 43.4 percent of the regional labor force compared to 36.5 percent of the State labor force was 45 or older. This condition is predicted to continue from 1960 through 1980. In 1970, the labor force is projected to become even older than in 1960, with 45.2 percent of the regional labor force and 37.4 percent of the State labor force projected to be in the two older groups. Both the regional and the State labor forces are projected to become slightly younger by 1980. In that year, 41.2 percent of the labor force of the region and 34.4 percent of the labor force of Tennessee will be 45 or older. The percentage in the Jackson Region labor force that is 65 or older is projected to increase from 1960 to 1980 in the region while it should decline in the State labor force. During the 1970's, the percentage of the regional labor force that is 45-64 years of age should decline and the percentages of some younger groups are projected to increase. These younger groups should remain relatively small, however.

The Jackson Region labor force is more strongly female than the State labor force. In 1960, the regional labor force was 66.3 percent male compared to 67.5 percent for the State labor force. The projections predict a regional labor force 60.2 percent male and a State labor force 61.3 percent male in 1970. The regional labor force is predicted to be 54.4 percent male in 1980 compared to 55.6 percent male for the State labor force.

These labor force developments are unlikely to be actually occurring in practice. Employment levels tend to follow male employment. Gradually, as males find employment outside the region, they will leave and take their wives with them. This reduces the female labor force and female employment in cases where wives were family breadwinners. (The 1970 and 1980 labor force projections are extrapolations of a temporary 1950-1960 trend where females became breadwinners for a period of several years). Male-employing industries are being actively sought in the region so that employment may be found by husbands and female-employing plants in the region can retain their workers.

Employment

Total employment in the Jackson Region is projected to increase by 7.4 percent during the 1960-1980 period. This growth is considerably slower than for Tennessee as a whole. Employment is expected to grow by 5.0 percent from 1960 to 1970 and by 2.3 percent from 1970-1980.

The extractive sector has always been important in the employment structure of the Jackson Region, which is a major cotton-producing section of the State. In 1960, the extractive sector employed 24.1 percent of all the workers compared to 11.8 percent for Tennessee. The extractive sector was the only relatively important sector in the region in that year. It is projected to continue being important until 1980.

The productive sector represented 33.8 percent of total employment in the region compared to 40.8 percent of total employment in the State for 1960. It is projected to increase in importance to the region as the extractive sector declines. The share of the productive sector should rise to 41.8 percent of total regional employment by 1970 and to 47.6 percent in 1980. In the latter year, the productive sector is projected to become relatively important. The increase in the productive sector is projected to be larger than the increase in total employment during the 1960-1980 period. The projected increase in total employment is 6,630; the projected increase in productive employment is 15,501.

The trade sector, although projected to grow very slowly, is expected to become relatively important. This sector represented 17.7 percent of regional employment in 1960 and it is predicted to represent 16.8 percent of regional employment in 1980. While the trade sector share of total employment declined in the region, it declined more slowly tnan in the State. The trade sector share is predicted to decline in the State from 18.5 percent in 1960 to 14.8 percent in 1980.

Employment in the service sector is projected to increase very slowly during the 1960-1980 period, and to remain relatively small. This reflects the failure of the region to develop an infrastructure during the 1960-1980 period. The region has also made an amazing transition in its industrial distribution. Only one sector was relatively important in the region in 1960; three of the four sectors are projected to be relatively important in 1980.

During the 1950's, male employment declined drastically while female employment rose very rapidly. The projections of employment and labor force for 1970 and 1980 show that projected female employment would greatly exceed the projected female labor force. The predicted employment growth for the region, especially in the productive sector, may be limited by this factor as the female labor force is exhausted. The employment of males is the most important manpower need in the region today.

Summary

The Jackson Region is the only region that is projected to lose population during the 1960-1980 period. This suggests that this region will be less successful in making the transition from an extractive-based economy to a productive-based economy during the 1950's than some other regions. The population loss is expected to occur among the young and prime age groups, while the retirement age group is predicted to actually increase in number. As a result, the region is projected to have the smallest percentage of its population in the younger age groups and the largest percentage in the retirement age group among all the regions in the State.

The labor force is also projected to decline during the 1960-1980 period. The male labor force should decline; the female labor force should increase. The labor force decline is due to sharply decreasedemployment opportunities for males, which more than offset the increase in females. The labor force was relatively old in 1960 and is projected to continue being old through 1980. During the 1970-1980 period, however, the shares of some younger groups are expected to increase at the expense of the 45-64 age group. This is the only bright spot in an otherwise unfavorable labor force age mix. The region is likely to face a serious manpower replacement problem should the projections be realized.

The employment distribution reflects a shift from a very high concentration in the extractive sector in 1960 to a distribution in 1980 which would see the productive and trade sectors also become relatively important. The region is projected to make the transition from extractive to industrial activities more slowly than some other regions. The services sector is predicted to remain relatively small throughout the period.

Memphis Region

Population

The Memphis Region is projected to enjoy a more rapid population growth than any other region in the State. The population of the region is forecast to rise from 764,999 in 1960 to 961,980 in 1970 and to 1,172,042 in 1980. The region ranked second in the State in total population in 1960. It is projected to be second in 1970 and to become first in total population by 1980. The projected absolute increase in population in the Memphis Region accounts for 55.4 percent of the projected population increase in all of Tennessee for the 1960-1980 period. The projected population growth rates are 53.2 percent from 1960 to 1980, 25.7 percent from 1960 to 1970, and 21.8 percent from 1970 to 1980. In all three cases, the projected growth rates are the highest among all regions by wide margins. Of special significance is the fact that this growth will be concentrated in Shelby County (Memphis). The projected absolute growth of Shelby County for the 1960-1980 period is 424,941, which is more than the projected growth for the entire region. These figures emphasize the concentration of population in Shelby County, which was, and is expected to continue to be, the most populous county in the State. Most of the other counties in the region are projected to lose population.

The age composition of the population is projected to become favorable during the 1960-1980 period. In 1960, the region had a relatively high percentage of its population in the under 65 age group. This condition is expected to continue through 1980. The percentage in the 20 64 age group is expected to decline and to become smaller than the State percentage. The percentage in the 0-19 age group, however, is projected to expand. The percentage in the retirement age group is expected to grow more slowly than in the rest of the State, and is expected to be smaller than the State percentage throughout the projection period.

AGE	1960	1970	1980
0-19	42.0	44.7	44.7
20-64	50.3	47.2	47.5
65-+	7.8	8.2	7.8

The table shows that the percentage of population in the 0-19 age group is projected to rise throughout the period, with almost all the share increase expected during the current decade. The percentage in the prime 20-64 age group is projected to fall during the 1960's and to rise slightly during the 1970's. The 65-and-over group is projected to rise during the 1960-1970 period and then to fall back to its 1960 share by 1980.

This mixture is favorable. While the economically active group is expected to be small relative to the State population, the youth group will become relatively large. The Memphis Region population is projected to be relatively young, perhaps the youngest of any region in the State.

The sex ratio of the population is projected to change only slightly. The percentage of males in the population should decline only from 48.4 in 1960 to 48.21 in 1970 and to 48.19 in 1980.

Labor Force

The labor force of the Memphis Region is projected to increase by 68.9 percent during the 1960-1980 period. The male labor force should grow by 41.2 percent; the female labor force should increase by 122.4 percent.

The sex composition of the labor force shows a slightly higher percentage of females in the labor force of the region than in the labor force of the State. This was true in 1960 and it is predicted to continue through 1980. This fact is partially due to the relative importance of female-employing service industries in the industrial composition of the region. The regional labor force was 66.0 percent male; the State labor force was 67.5 percent male in 1960. The 1970 projections show the regional labor force to be 60.2 percent male and the State labor force to be 61.3 percent male. In 1980, the regional labor force should be 55.2 percent male compared to 55.6 percent male for the State.

The labor force of the Memphis Region is projected to be younger than the State labor force. In 1960, the 18-44 year age group was relatively more important in the labor force of the region than of that of the State. By 1970, the groups under 34 are predicted to be large, while the other groups are predicted to be small relative to the State. The same composition is also foreseen for 1980.

The Memphis Region labor force should contain a large reservoir of young, trainable people. It should be a vigorous labor force, capable of maintaining the growth of the region beyond 1980. It is true that there will be a relatively small percentage of workers in the prime 35-64 years of age, but this may be primarily due to entry into the labor force of numbers of young people born during the "baby boom" of the 1945-1955 period, combined with low birth rates during the 1930's. The percentage of the over-65 group in the labor force is projected to be relatively low through 1980.

Employment

Total employment in the Memphis Region is projected to increase by 76.2 percent from 1960 to 1980. The projected growth rates for the 1960-1970 and the 1970-1980 periods are 36.7 and

28.3 percent, respectively. These growth rates are faster than those for any other region. They underscore the rapid population growth predicted for the region.

The sectoral distribution of employment in the region is projected to be strongly favorable. The productive sector is large and it is projected to grow substantially(69.5 percent) from 1960 to 1980. The services and trade sectors are projected to rise so rapidly that the share of the productive sector in the total regional employment is predicted to decline. The services sector is predicted to become the largest of the sectors by 1980 with 47.5 percent of total employment in the region. This compares with a projected 38.1 percent of total State employment in services. In 1960, services employed 35.0 percent of the region's workers compared to 29.1 percent for the State. The share of services in regional employment should increase faster than the services share of total State employment. Services employment is projected to increase by 122.4 percent from 1960-1980. The trade sector is also relatively important in the Memphis Region. Trade employment represented 21.8 percent of regional employment and 18.5 percent of State employment in 1960. By 1980, the trade sector share of regional employment is projected to decline to 16.2 percent, which is still higher than the projected State share of 14.8 percent. The extractive sector is relatively unimportant and is predicted to remain unimportant through 1980. In that year, extractive activities should employ 2.6 percent of the region's workers compared to 2.8 percent of the State's workers.

The employment projections show the Memphis Region strengthening its role as a trade and service center for the surrounding countryside. The trade and service sectors were relatively important in 1960 and should continue to be important through 1980. The manufacturing sector is large and should grow rapidly, even though it should continue to be less important to the region than to the State. Its rapid growth helps provide a sound base for the region, even though its share of total regional employment is predicted to decline. The large trade and services sectors, with the especially rapid growth in services, attests to the prosperity of the region as indicated by its unusually sound employment distribution.

Summary

The Memphis Region should have the soundest economy among all the regions. It is projected to have the fastest population and employment growth rates. It has favorable age compositions in both population and labor force, with relatively high concentrations in the younger age groups and correspondingly low percentages in older age groups. The region may have the most vigorous labor force among all the regions. The population and labor force are projected to become younger during the 1960-1980 period.

The region also possesses the most favorable industry composition among the regions. The services sector is the largest, followed by the productive sector. Despite a fairly high growth rate, the percentage share of the productive sector should decline. The trade sector should continue to be relatively important as an employer. The industrial projections show the Memphis Region as having attained the services dominated economy, the third stage of full economic development.

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